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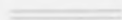
PLEADINGS, ORAL ARGUMENTS, DOCUMENTS

CASE CONCERNING DELIMITATION
OF THE MARITIME BOUNDARY
IN THE GULF OF MAINE AREA

(CANADA/UNITED STATES OF AMERICA)

VOLUME VIII

Maps, Charts and Illustrations



COUR INTERNATIONALE DE JUSTICE

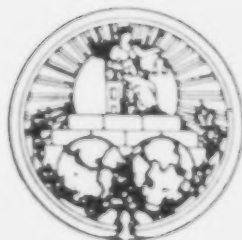
MÉMOIRES, PLAIDOIRIES ET DOCUMENTS

AFFAIRE DE LA DÉLIMITATION
DE LA FRONTIÈRE MARITIME
DANS LA RÉGION DU GOLFE DU MAINE

(CANADA/ÉTATS-UNIS D'AMÉRIQUE)

VOLUME VIII

Cartes et illustrations



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*C.I.J. Mémoires, Délimitation de la frontière maritime
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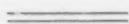
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Cartes et illustrations



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- Figure 2. Geographic distribution of shrimp *crangon septemspinosa*. (Source: *Ibid.*, p. 20.)
- Figure 3. Geographic distribution of bivalve *astarte castanea*. (Source: Theroux and Wigley, 1983, p. 73, Fig. 11.)
- (196) Figure 4. Geographic distribution of hermit crab *pagurus acadianus*.
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- Figure 7. Geographic distribution of shrimp *pandalus borealis*. (Source: Williams and Wigley, 1977, p. 34.)
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Oral Arguments of Canada

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- (226) Figure 10. Figure illustrating the effect of a rectangular concavity upon the course of the equidistant line.
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Rejoinder of Canada

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- (240) Figure 121. Coastal front extensions in the Gulf of Maine area: inner area.

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**MAPS, CHARTS AND
ILLUSTRATIONS**

**CARTES
ET ILLUSTRATIONS**



Figure 1: Claims of the Parties at 29 March 1979

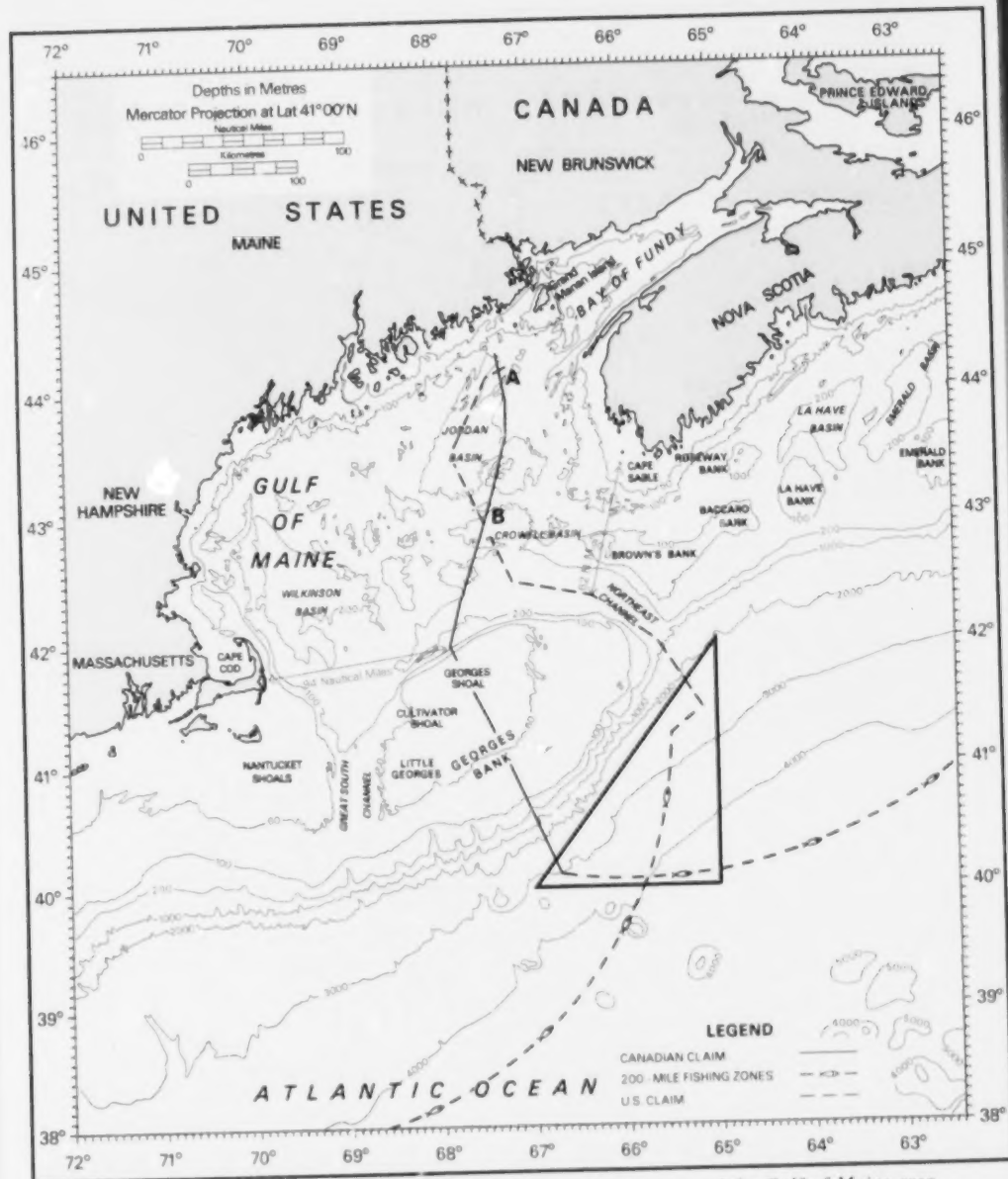


Figure 2: Claims of the Parties at 29 March 1979 and bathymetry of the Gulf of Maine area

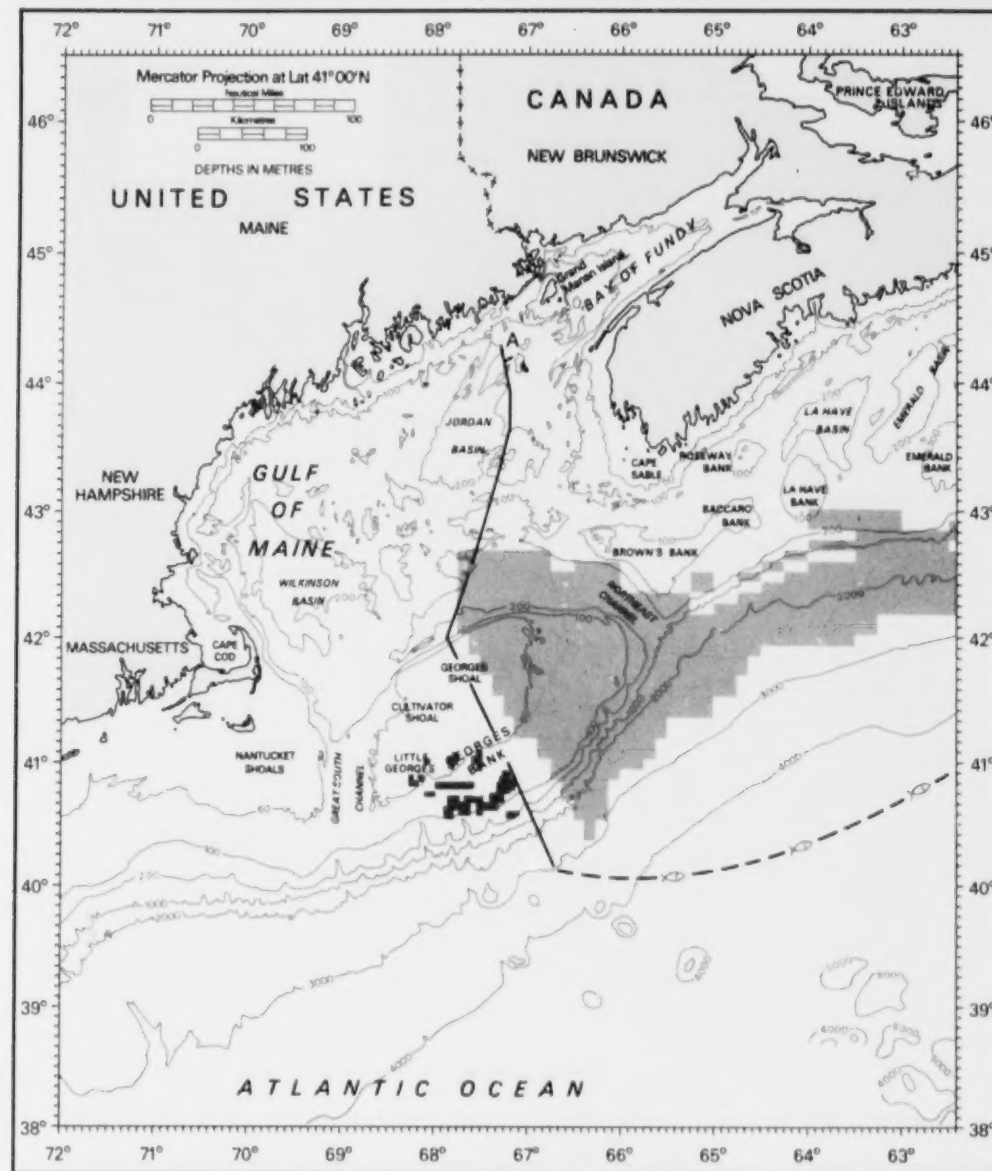


Figure 4: Outstanding offshore oil and gas permits

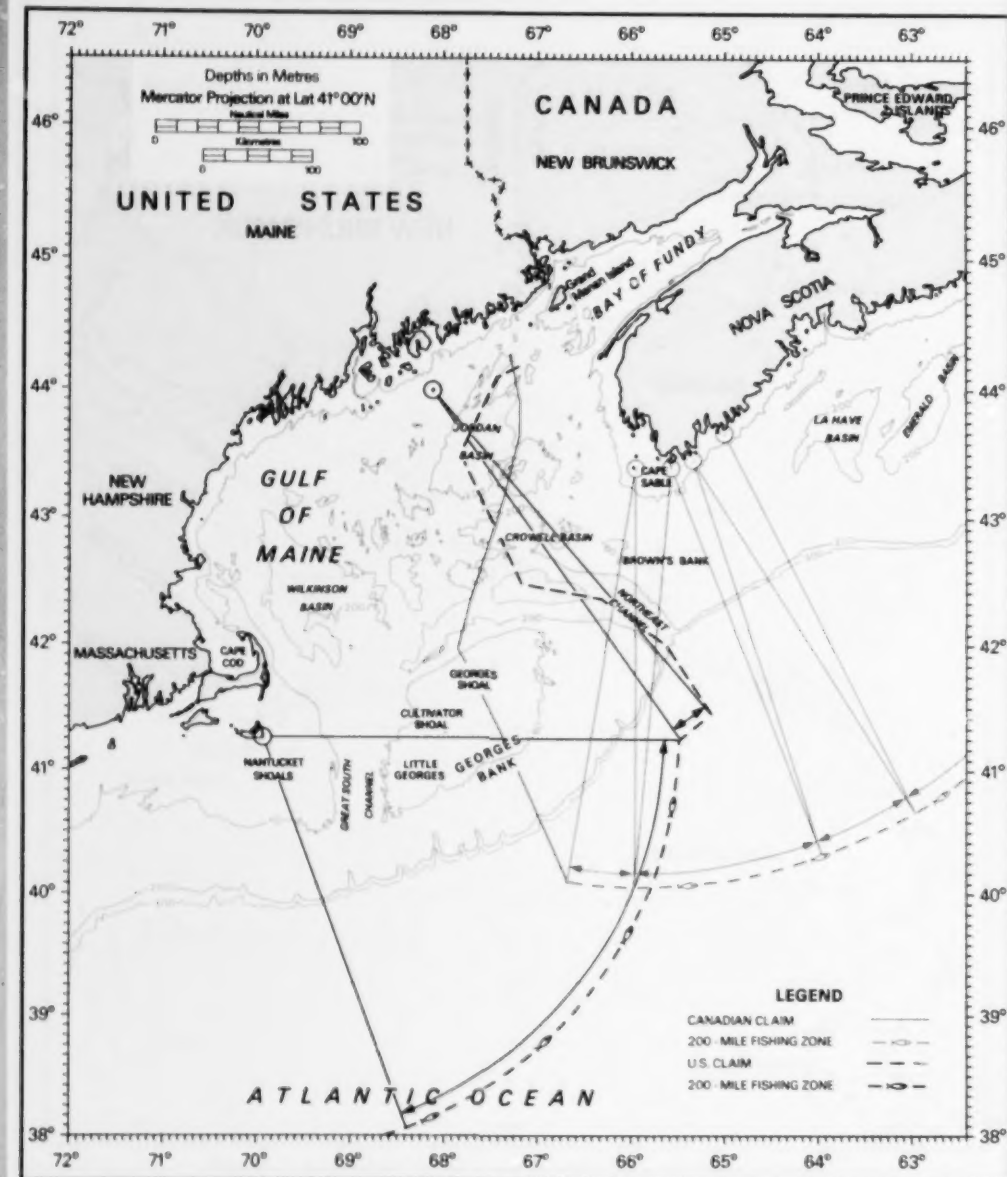


Figure 5: Construction of the Parties' 200-mile fishing zones

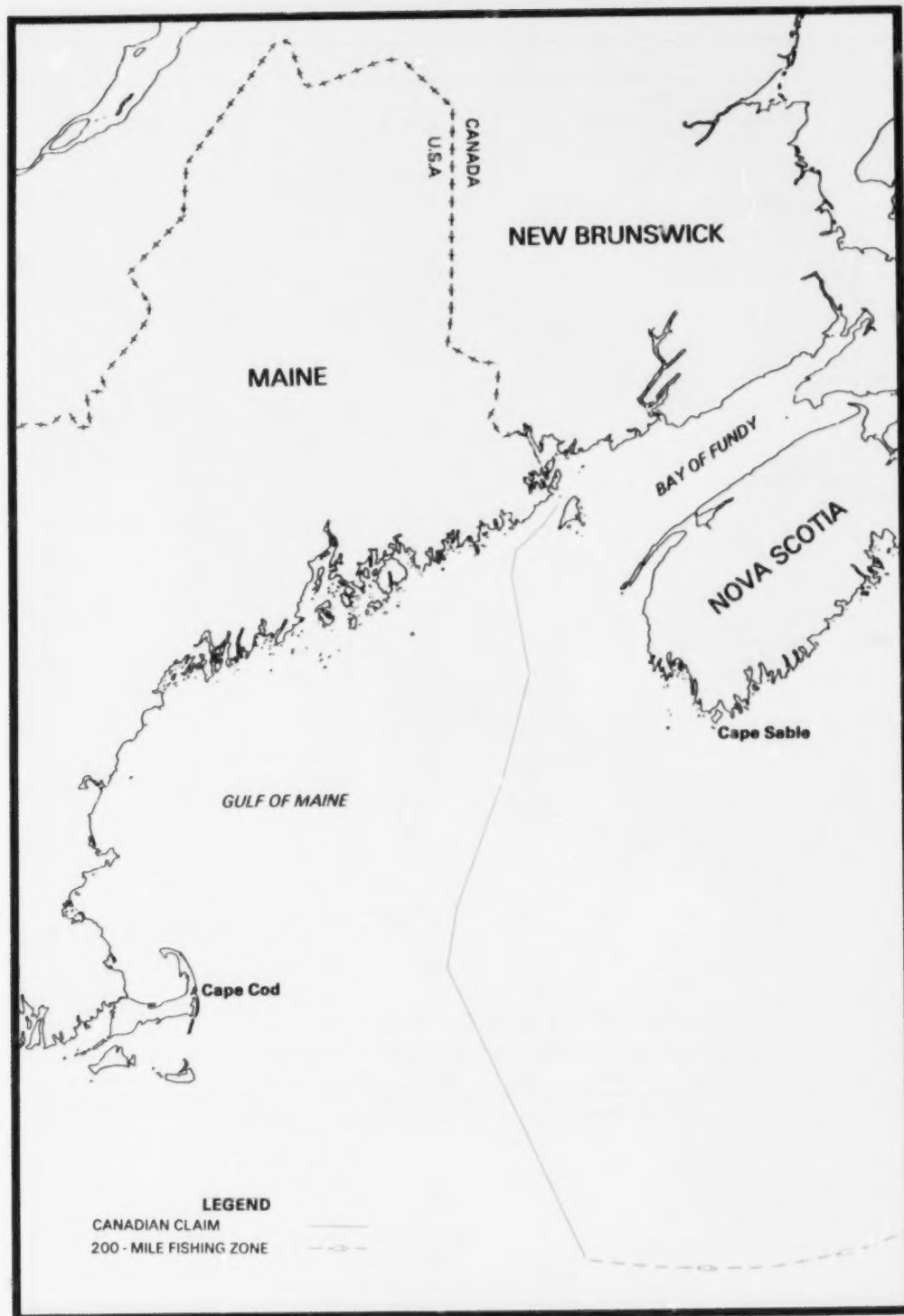
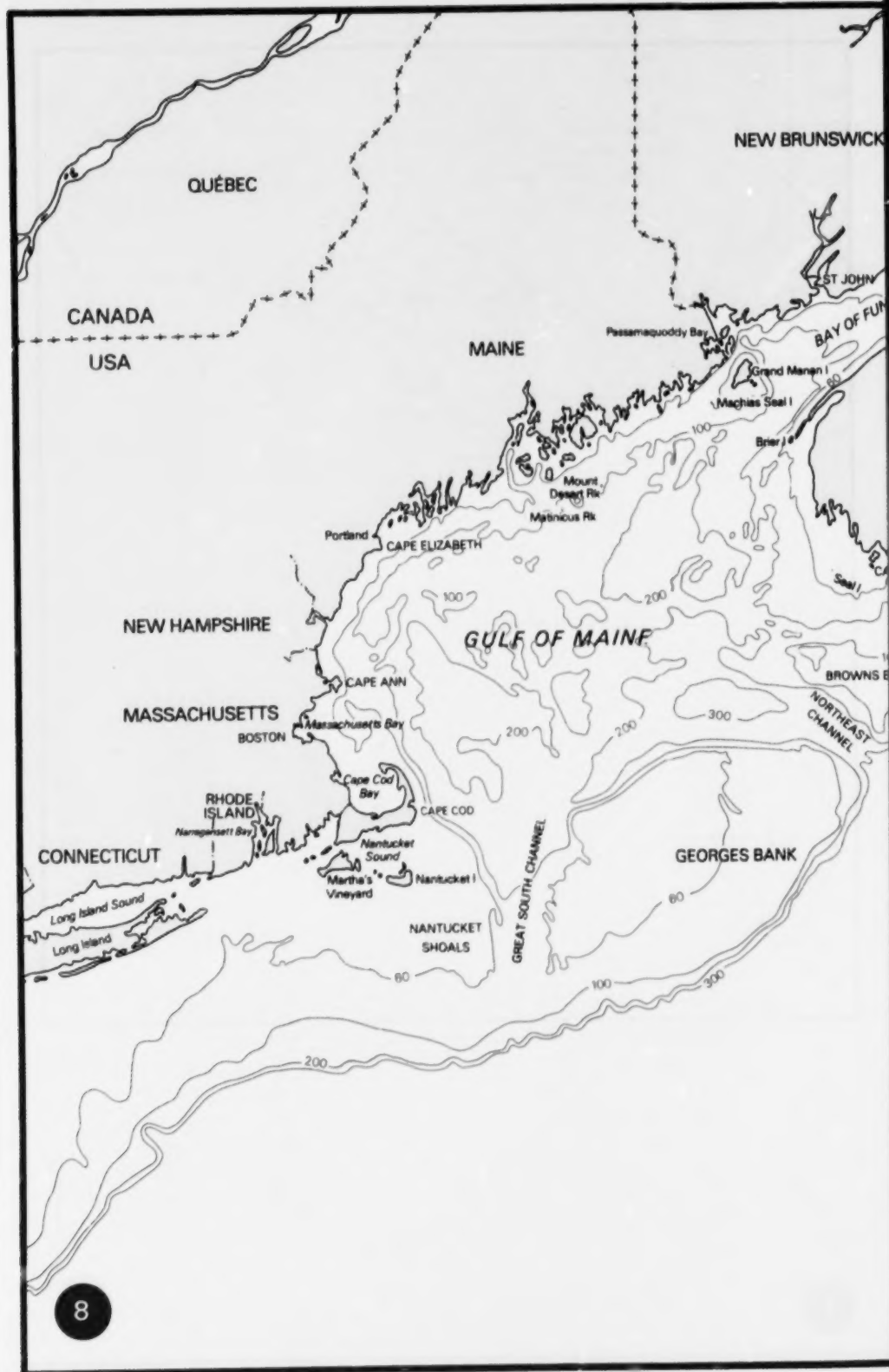


Figure 6: New Brunswick - Maine land boundary



Figure 7: Directional trends of the Atlantic coast of North America



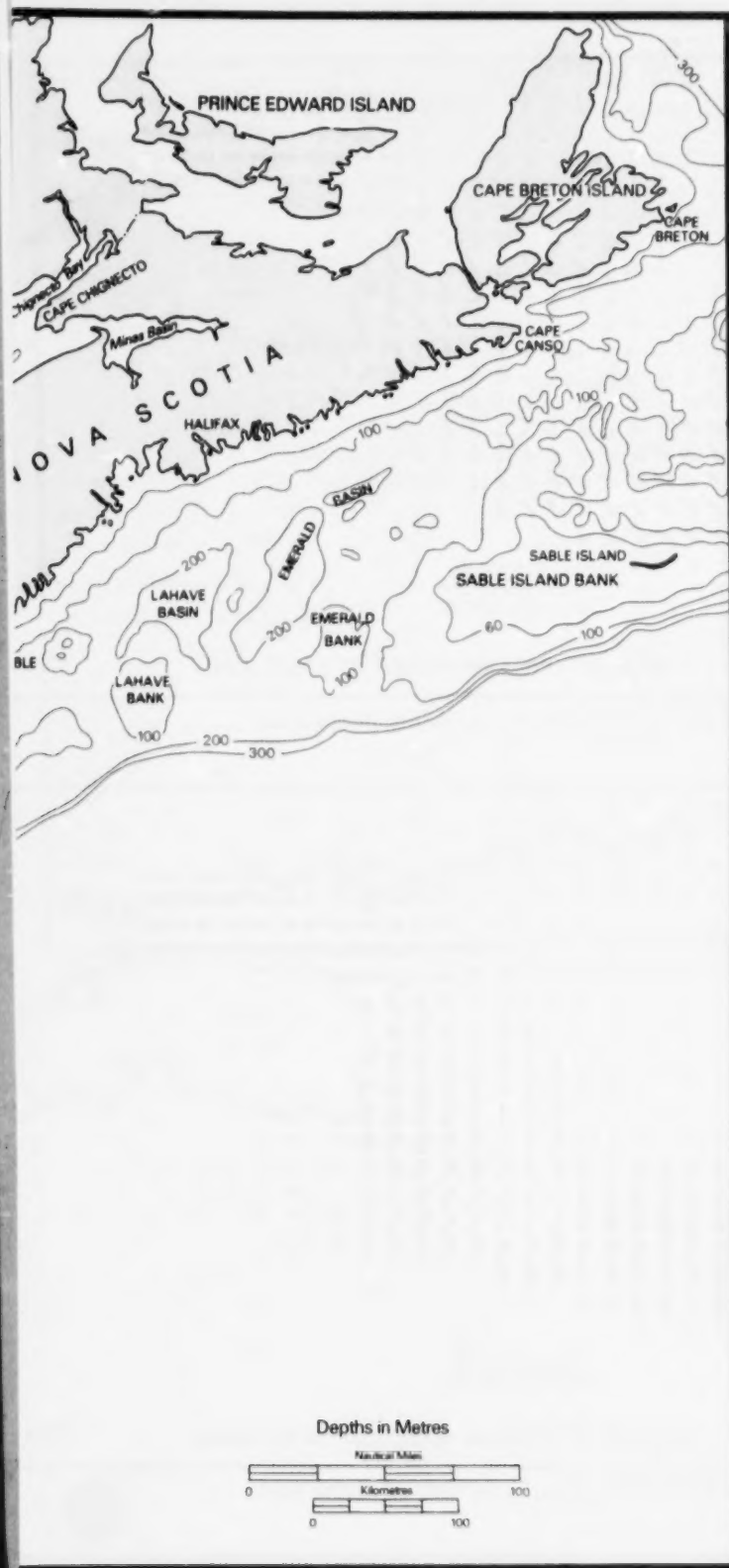


Figure 8

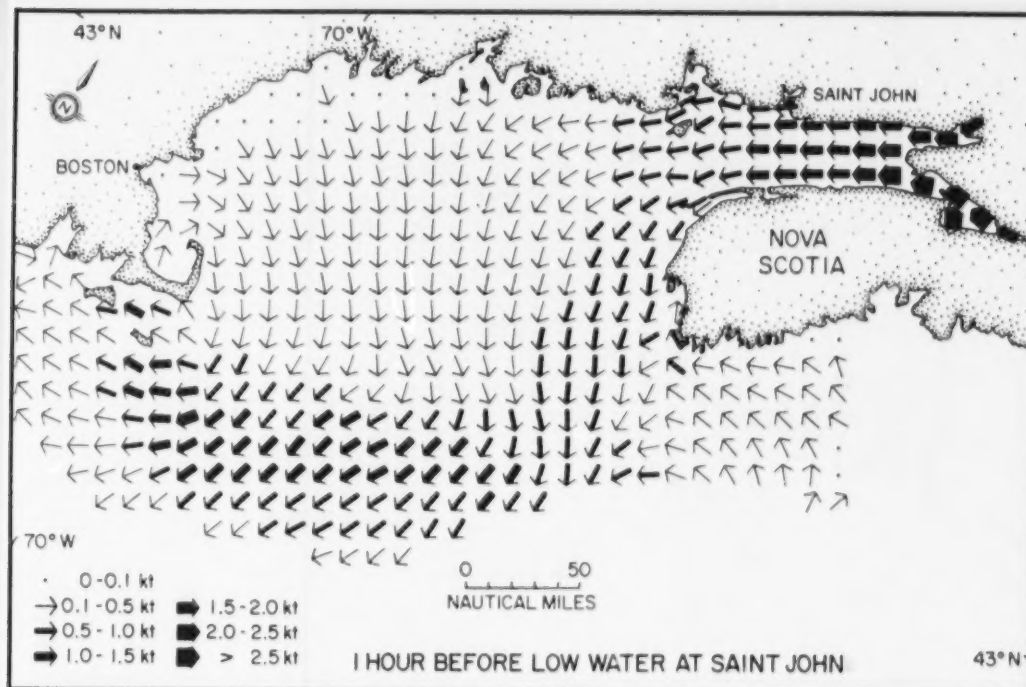


Figure 18: Tidal systems in the Gulf of Maine area

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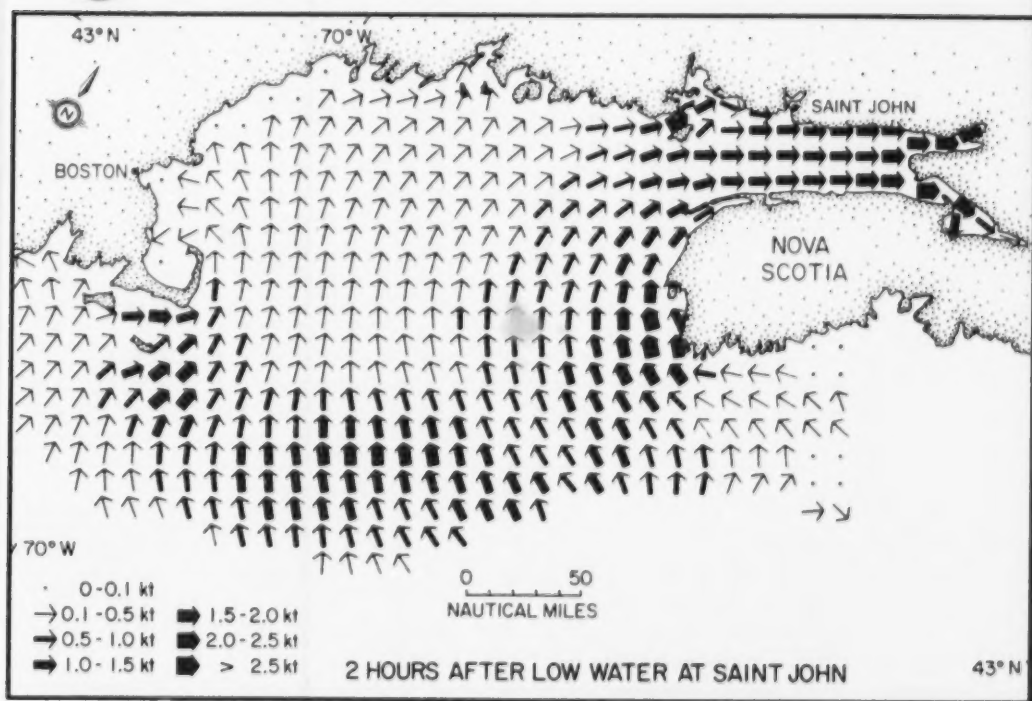


Figure 19: Tidal systems in the Gulf of Maine area

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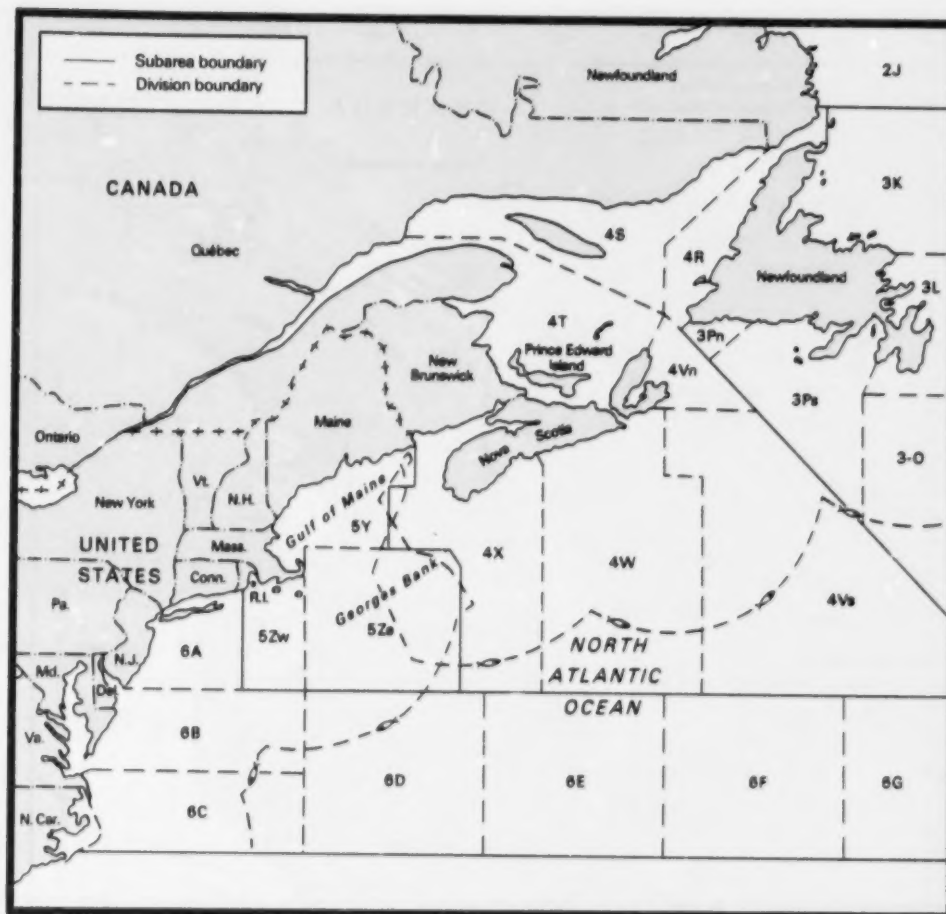


Figure 22: ICNAF subareas and divisions

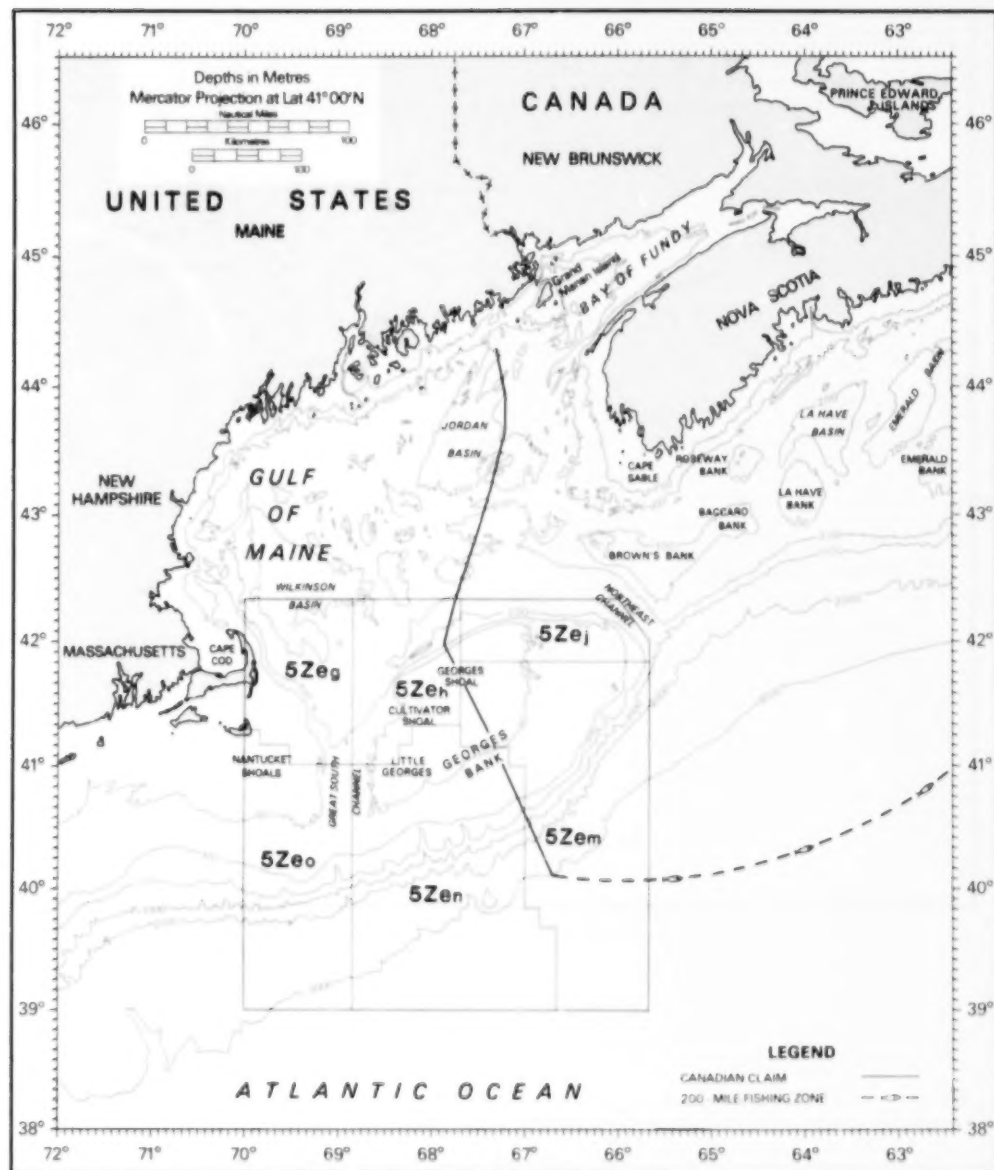


Figure 23: Statistical units of ICNAF subdivision 5Ze



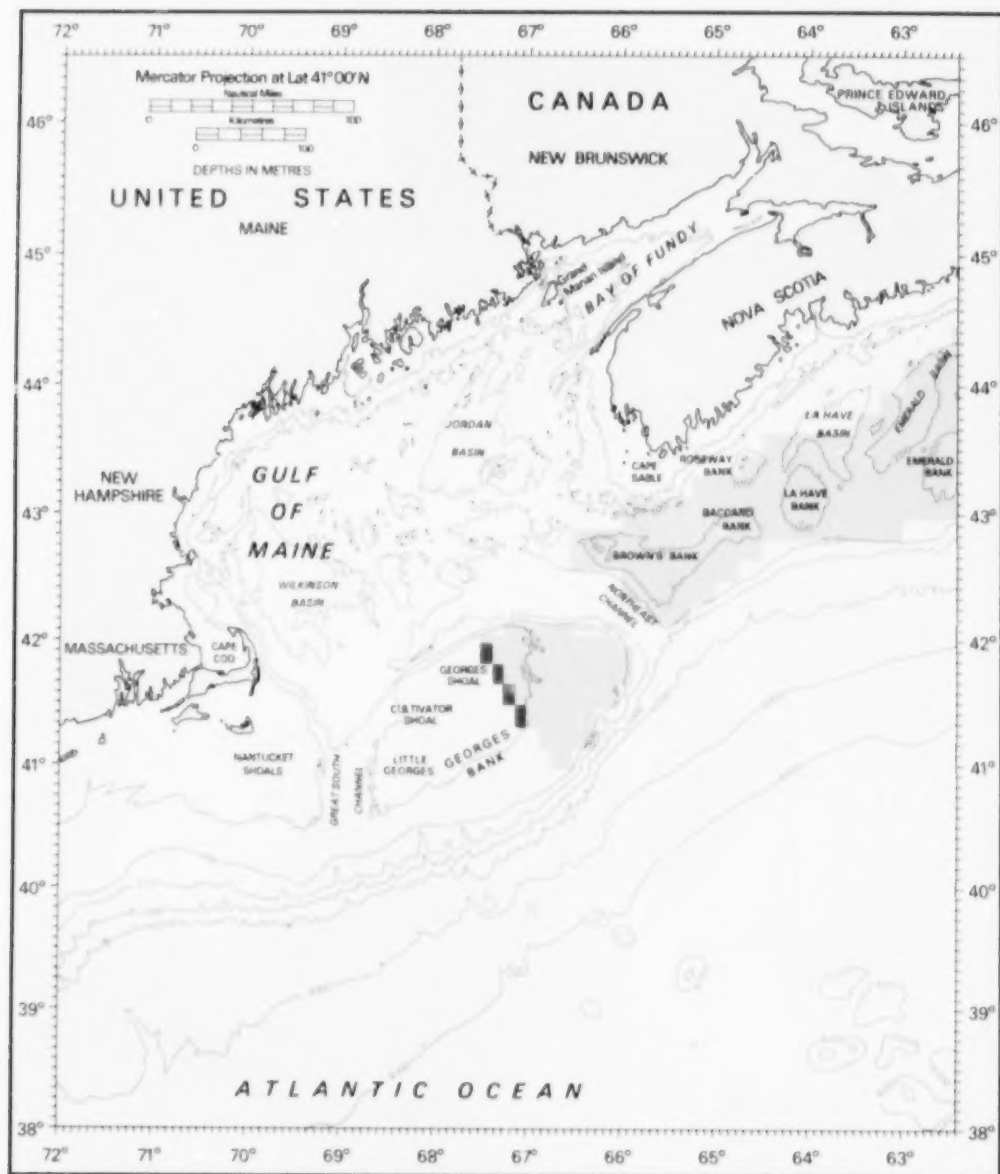


Figure 31: Canadian offshore oil and gas exploratory permits at June 1965

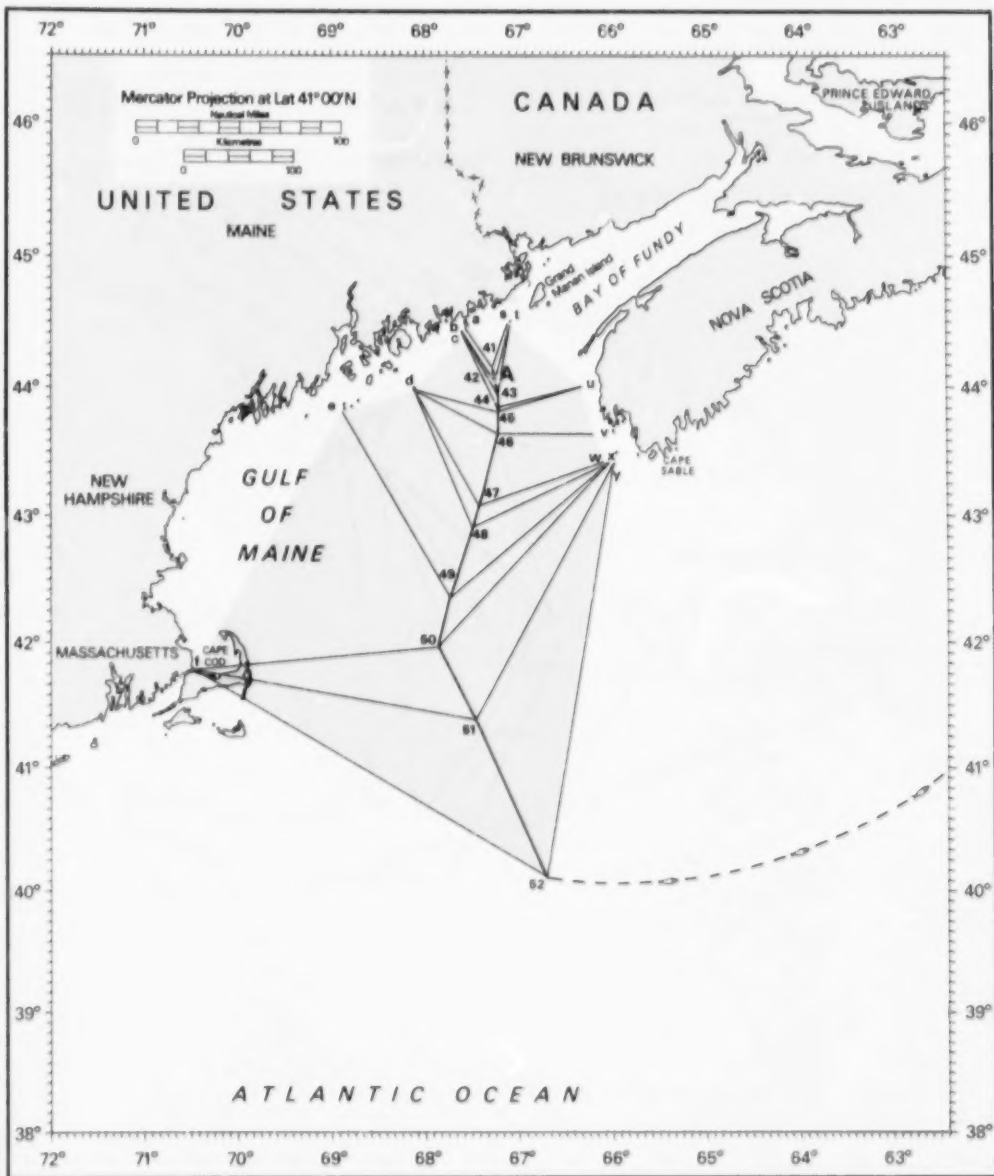


Figure 32: Construction of the Canadian line

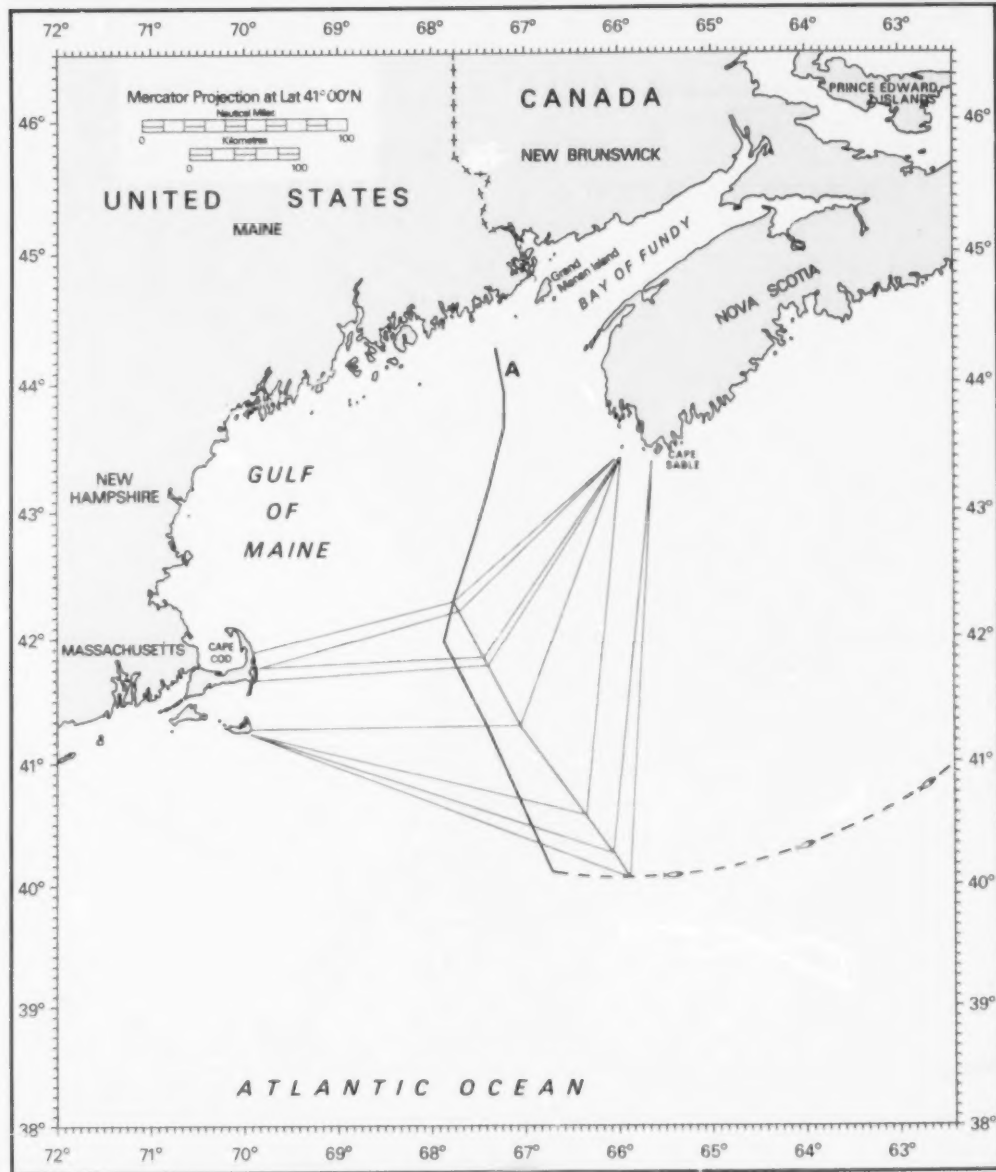


Figure 33: Effect of Cape Cod on equidistance

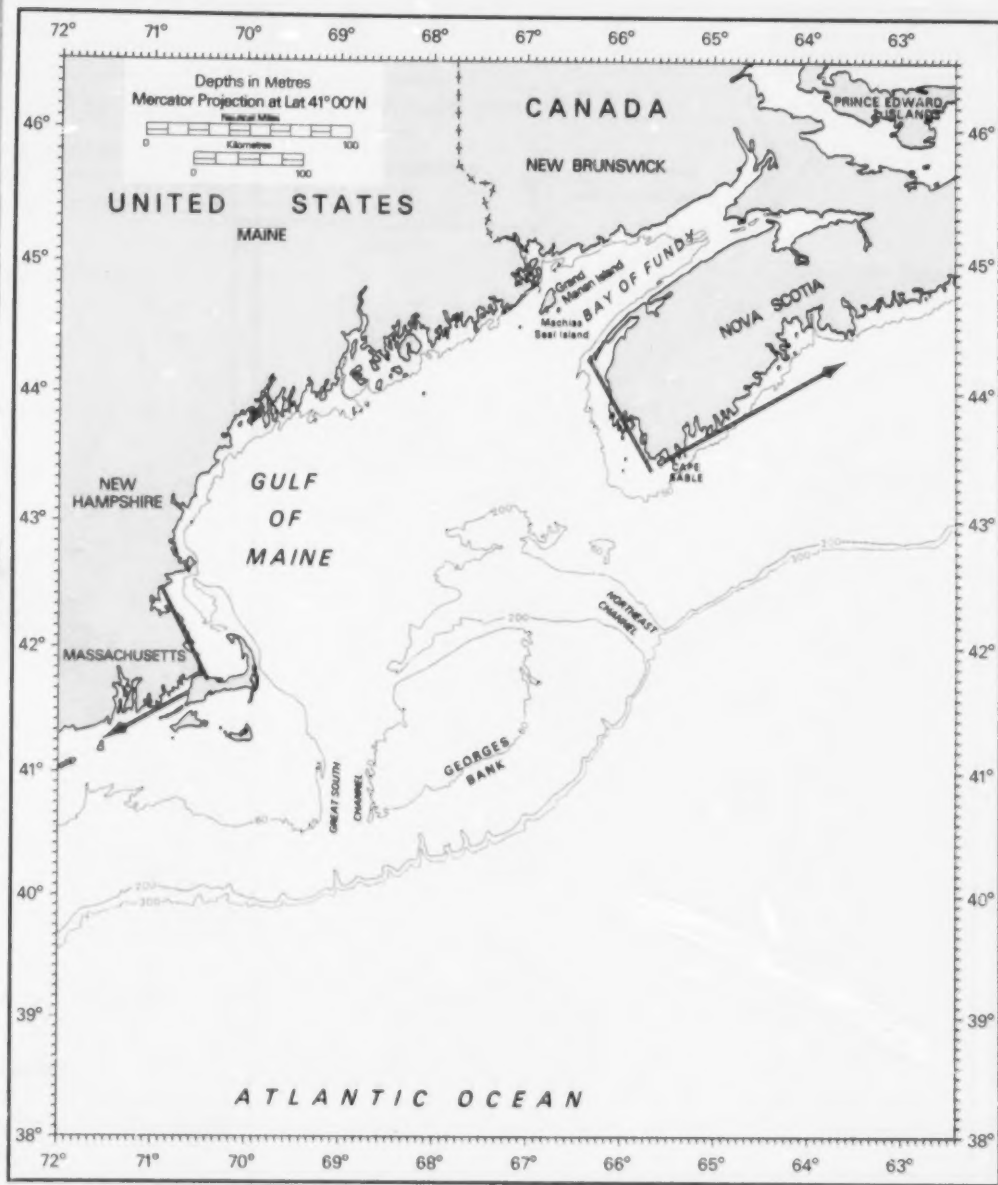
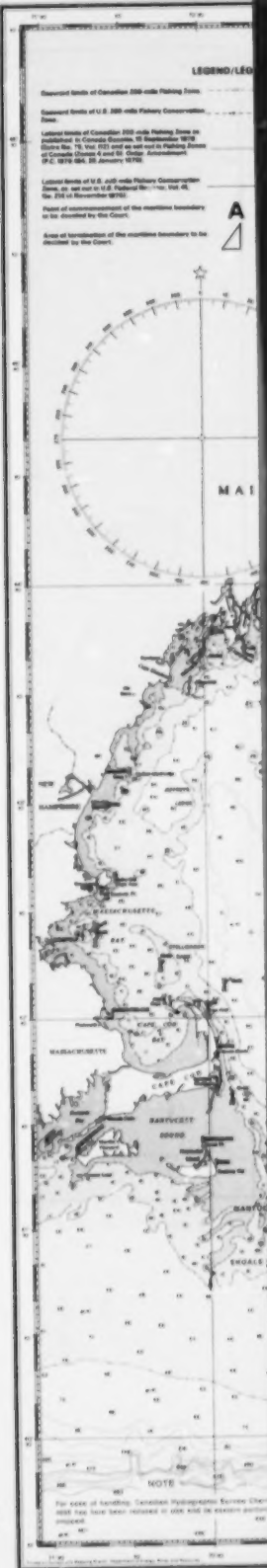


Figure 34: Coastal "wings" of the Gulf of Maine area





CANADA

ATLANTIC COAST/CÔTE DE L'ATLANTIQUE

CAPE BRETON TO/A CAPE COD

Scale 1:575,000 IMPRIMERIE Nationale

Projection: Mercator

DEPTHS IN FATHOMS

Profondeurs en brasses

Soundings are in fathoms unless otherwise indicated

Les sondages sont en brasses à moins qu'il n'y ait indication contraire

For Soundings and Abbreviations, see Sheet No. 1

PROFONDEURS EN BRASSES

Profondeurs en brasses à moins qu'il n'y ait indication contraire

Soundings are in fathoms unless otherwise indicated

Les sondages sont en brasses à moins qu'il n'y ait indication contraire

For Soundings and Abbreviations, see Sheet No. 1

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NOTE

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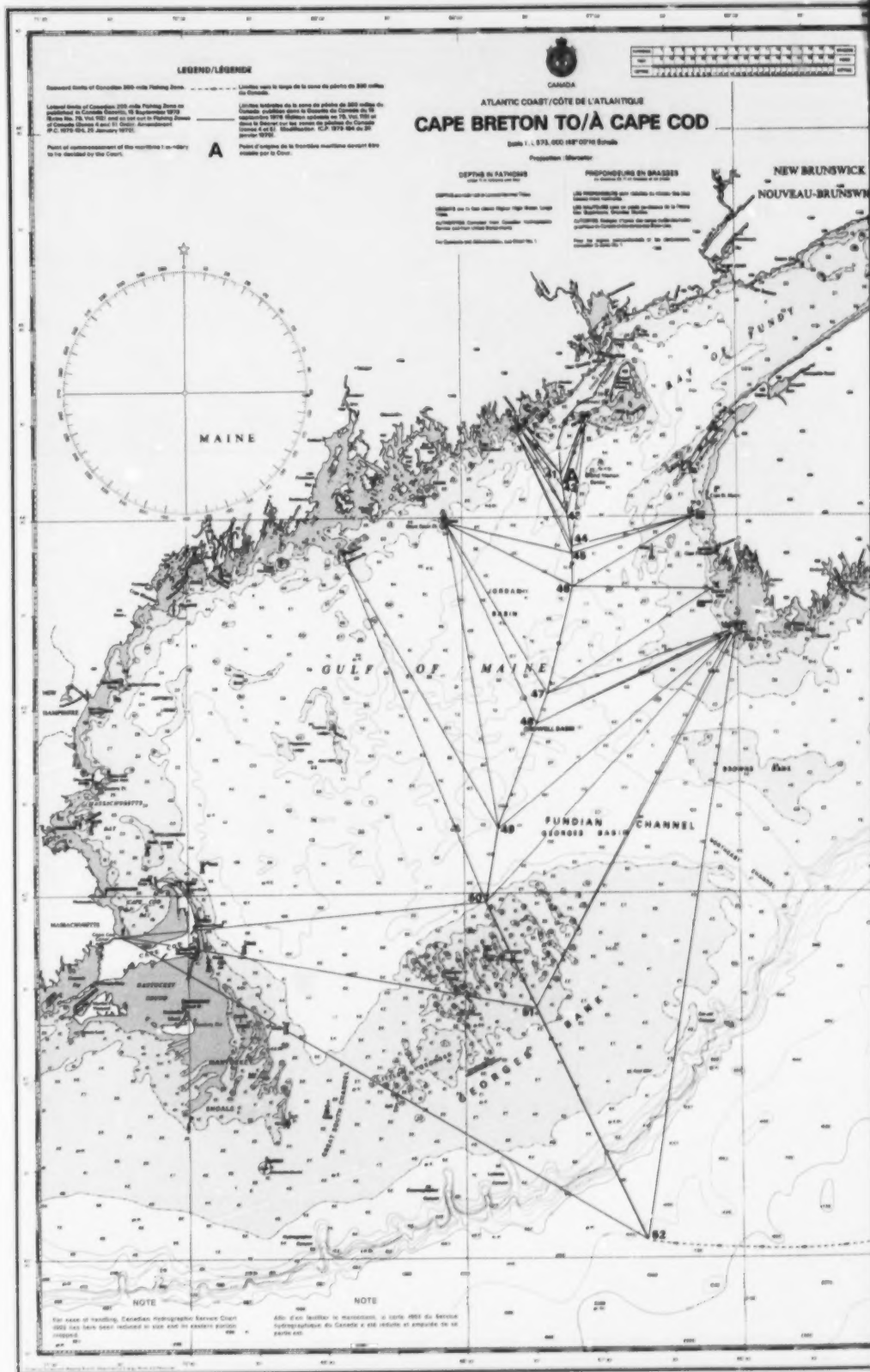
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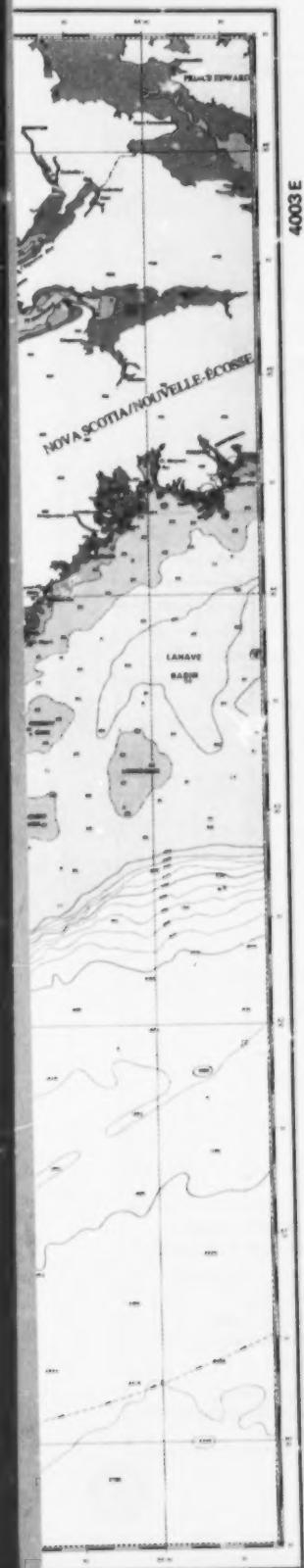
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Produced by the Canadian Meteorological Service
 Meteo-Canada 3969, 3969
 Produced by the Canadian Meteorological Service
 Meteo-Canada 3969, 3969

Figure 3

EAST COAST OF NORTH AMERICA, WITH BATHYMETRY



Figure 5

22

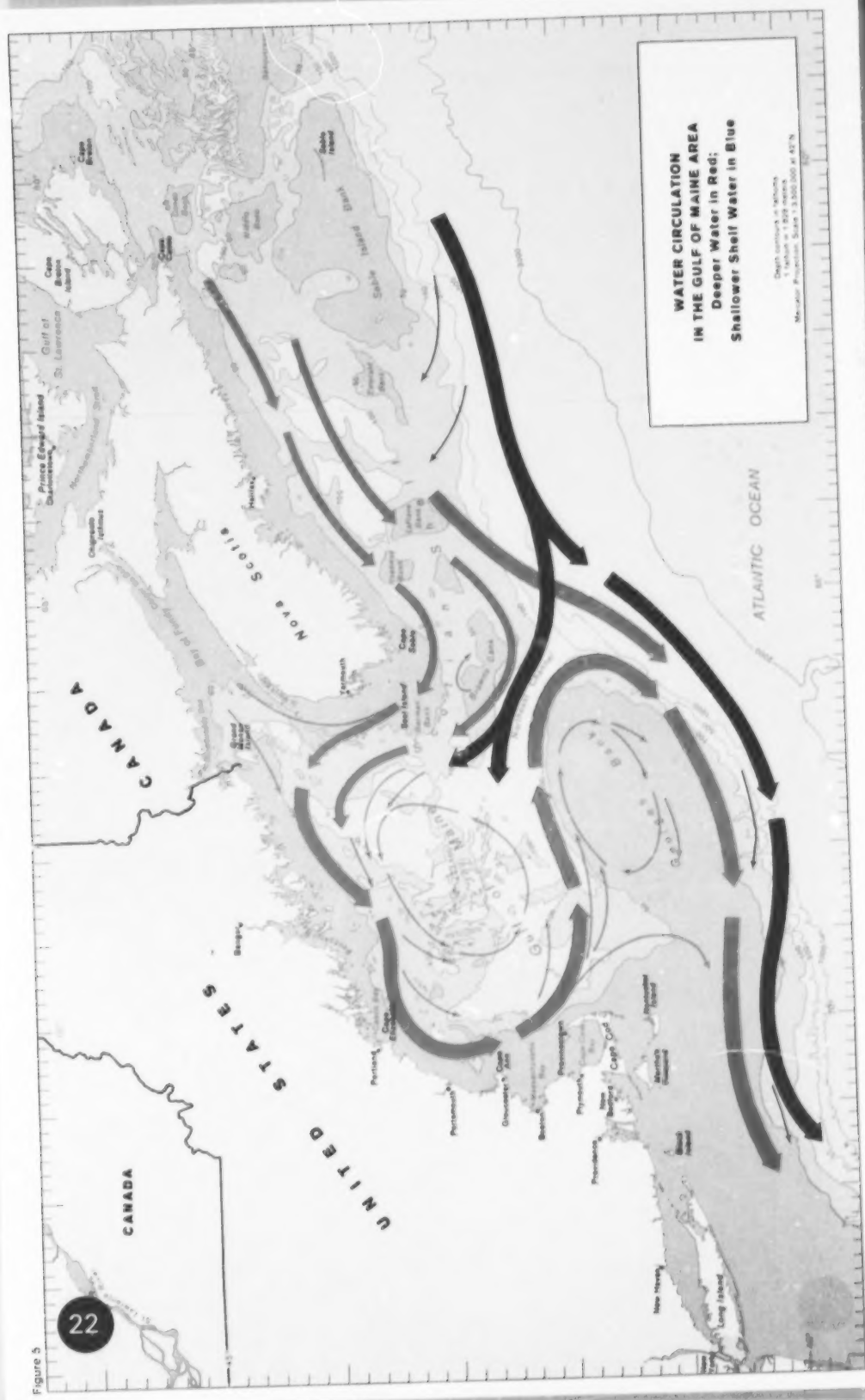


Figure 7

**RANGES OF STOCKS OF SIXTEEN COMMERCIALLY IMPORTANT SPECIES,
IN A ZONE EXTENDING FROM BLOCK ISLAND (RHODE ISLAND),
ACROSS GEORGES BANK, THE NORTHEAST CHANNEL, AND
BROWNS BANK TO LAHAVE BANK**

Fishable Quantities of Individual Stocks Occur as Indicated by Bars

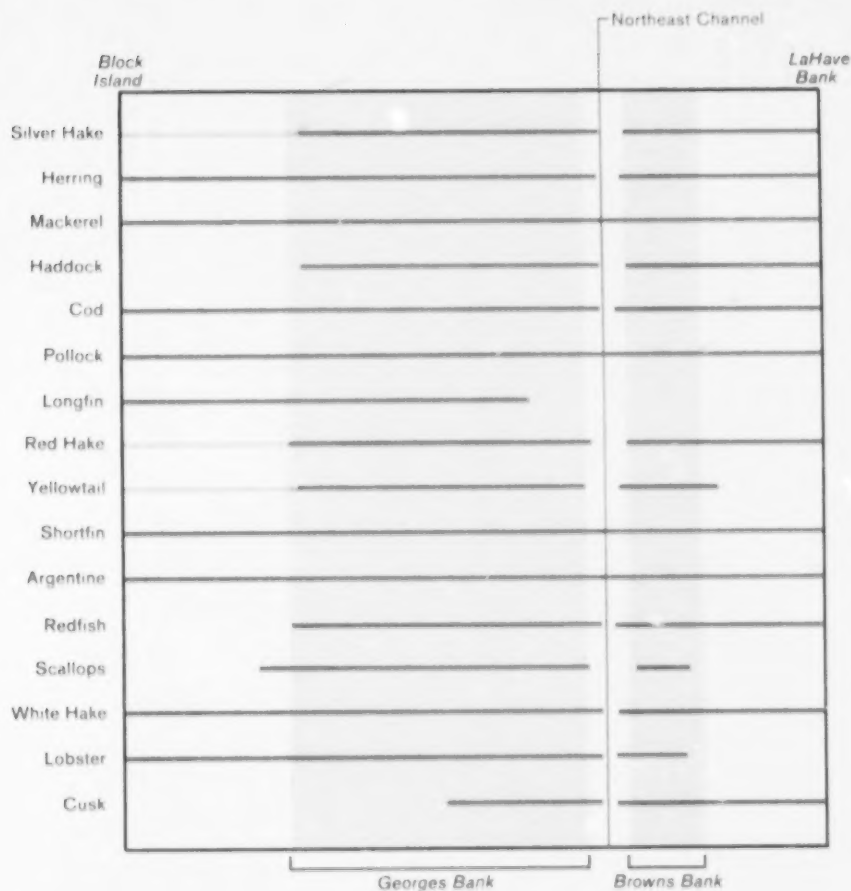
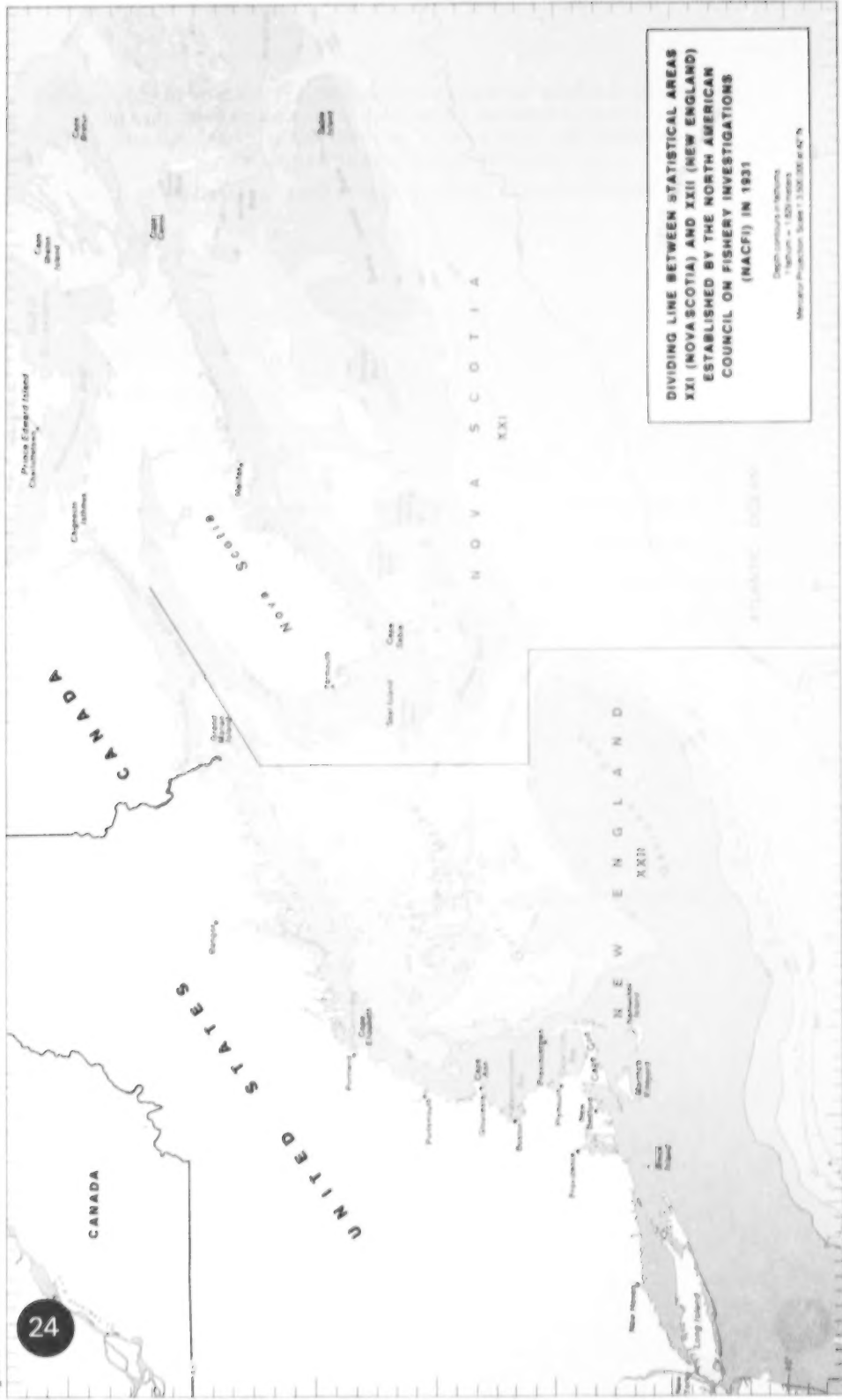


Figure 8



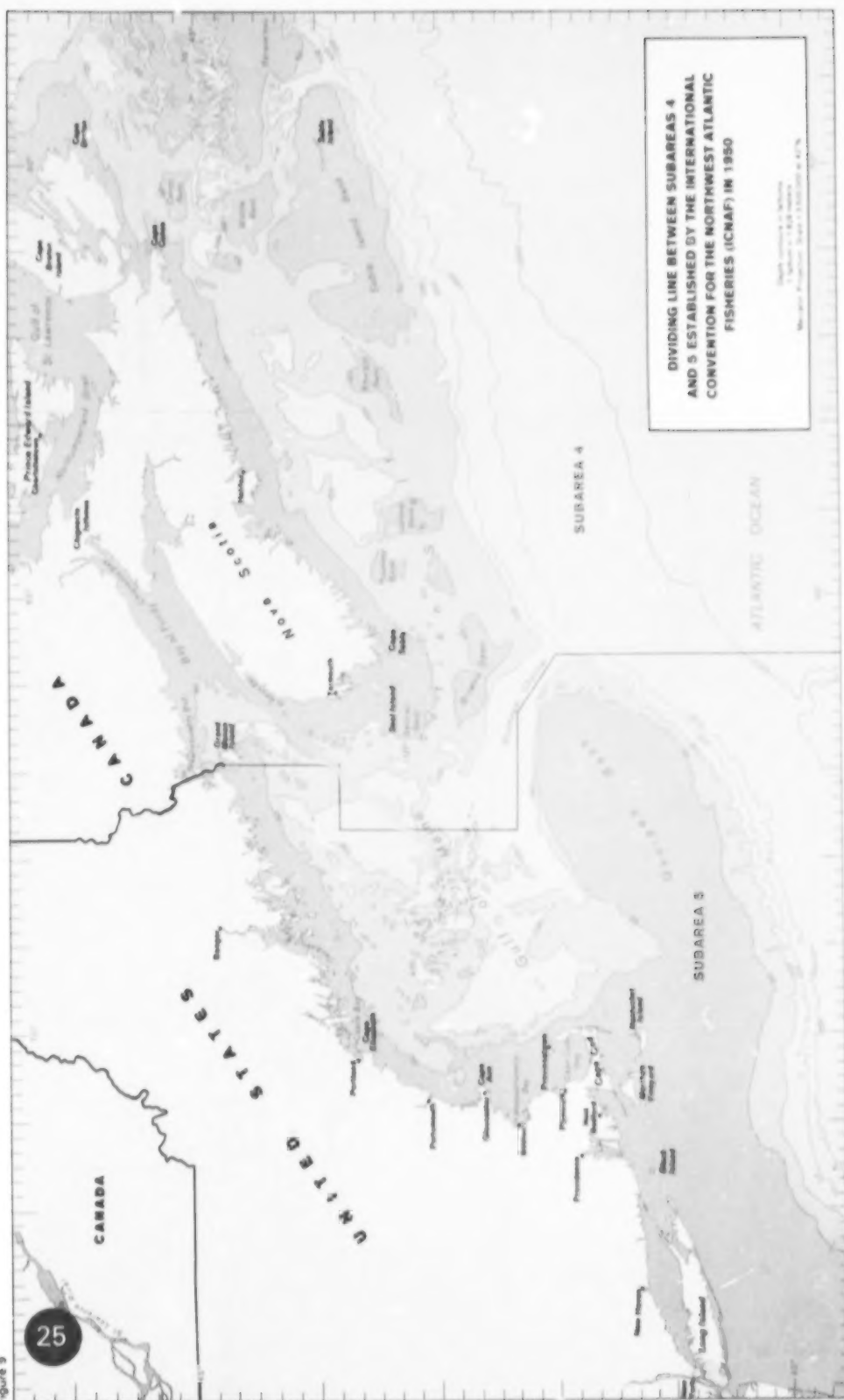
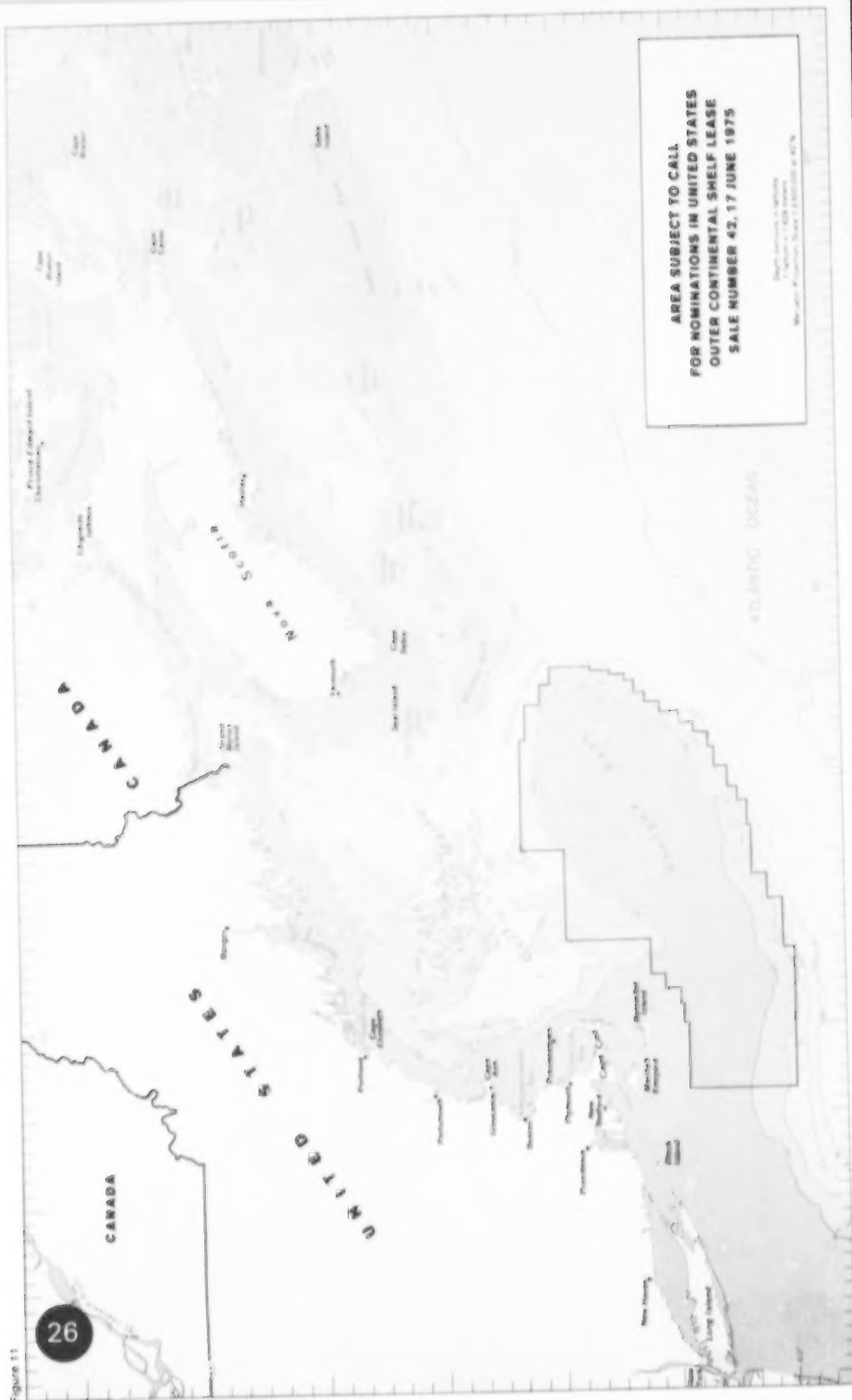
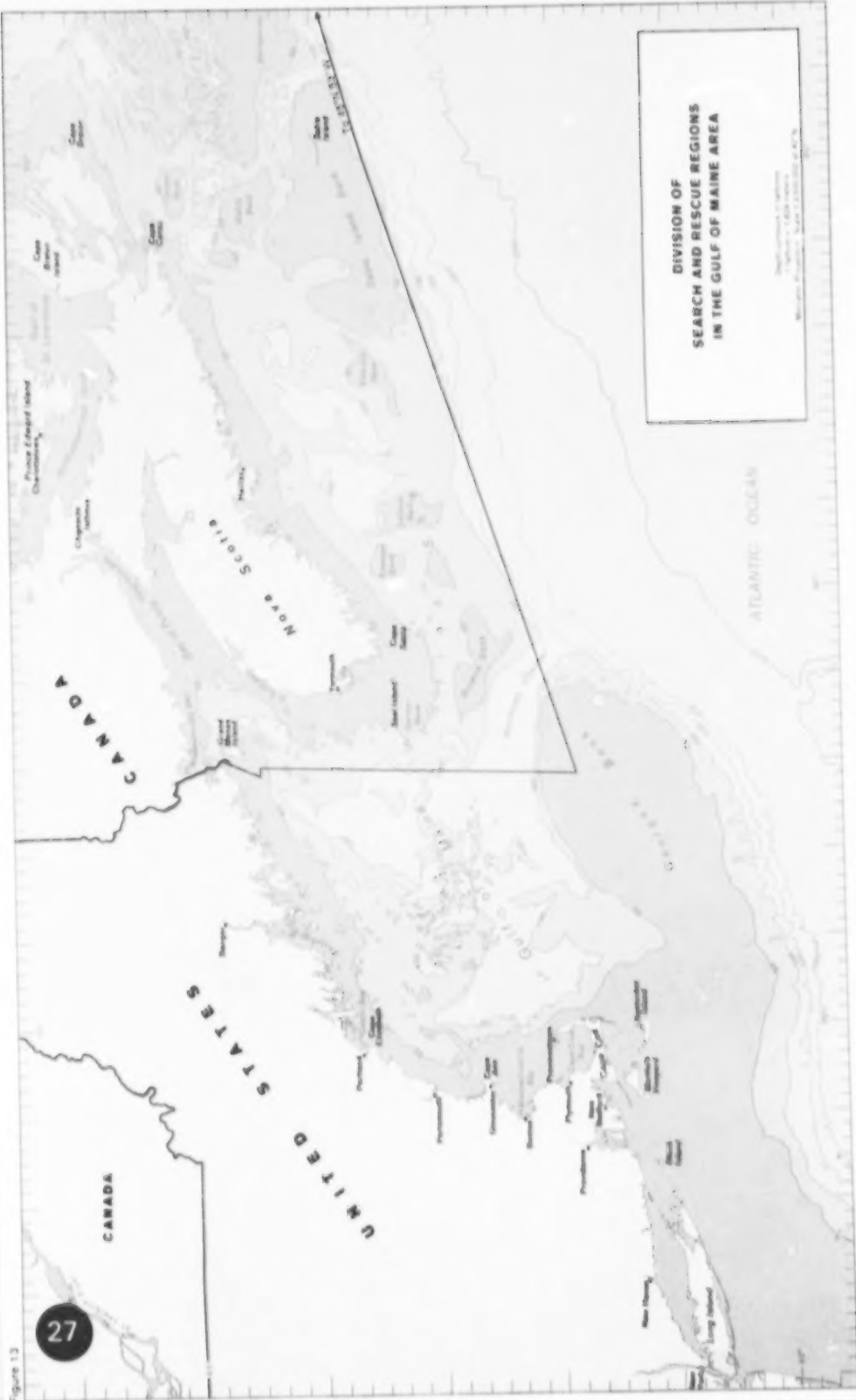


Figure 11





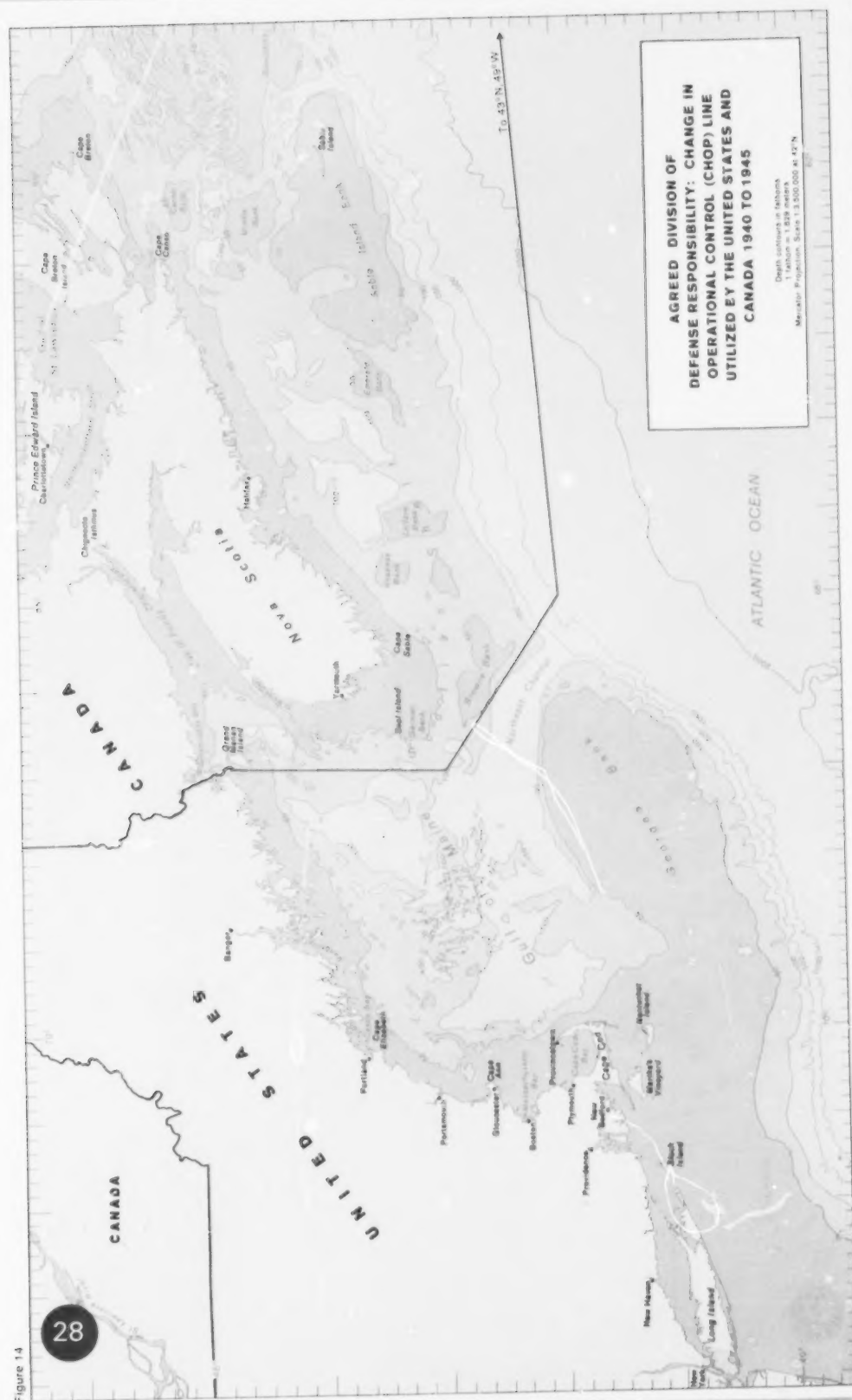


Figure 16

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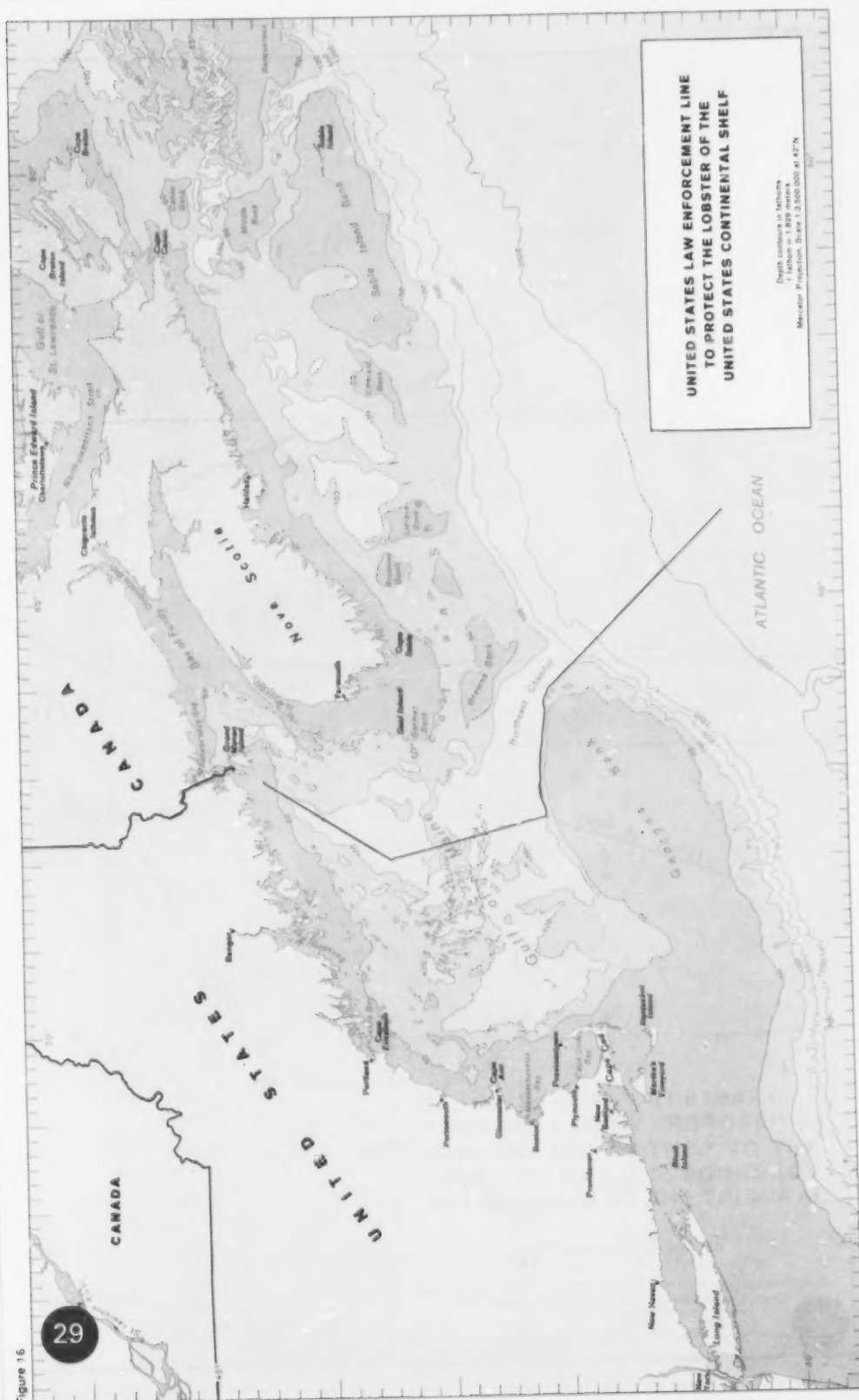
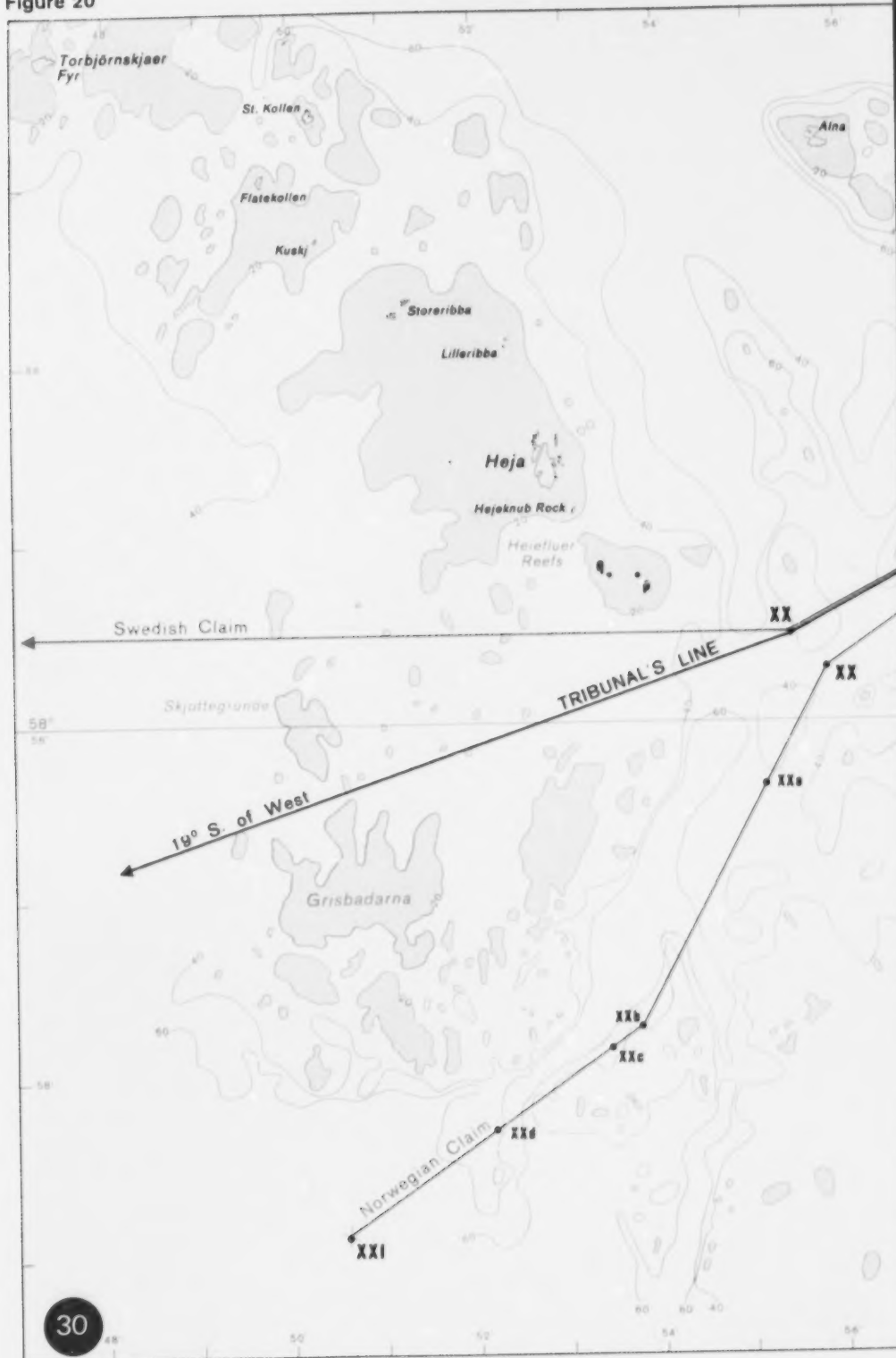


Figure 20



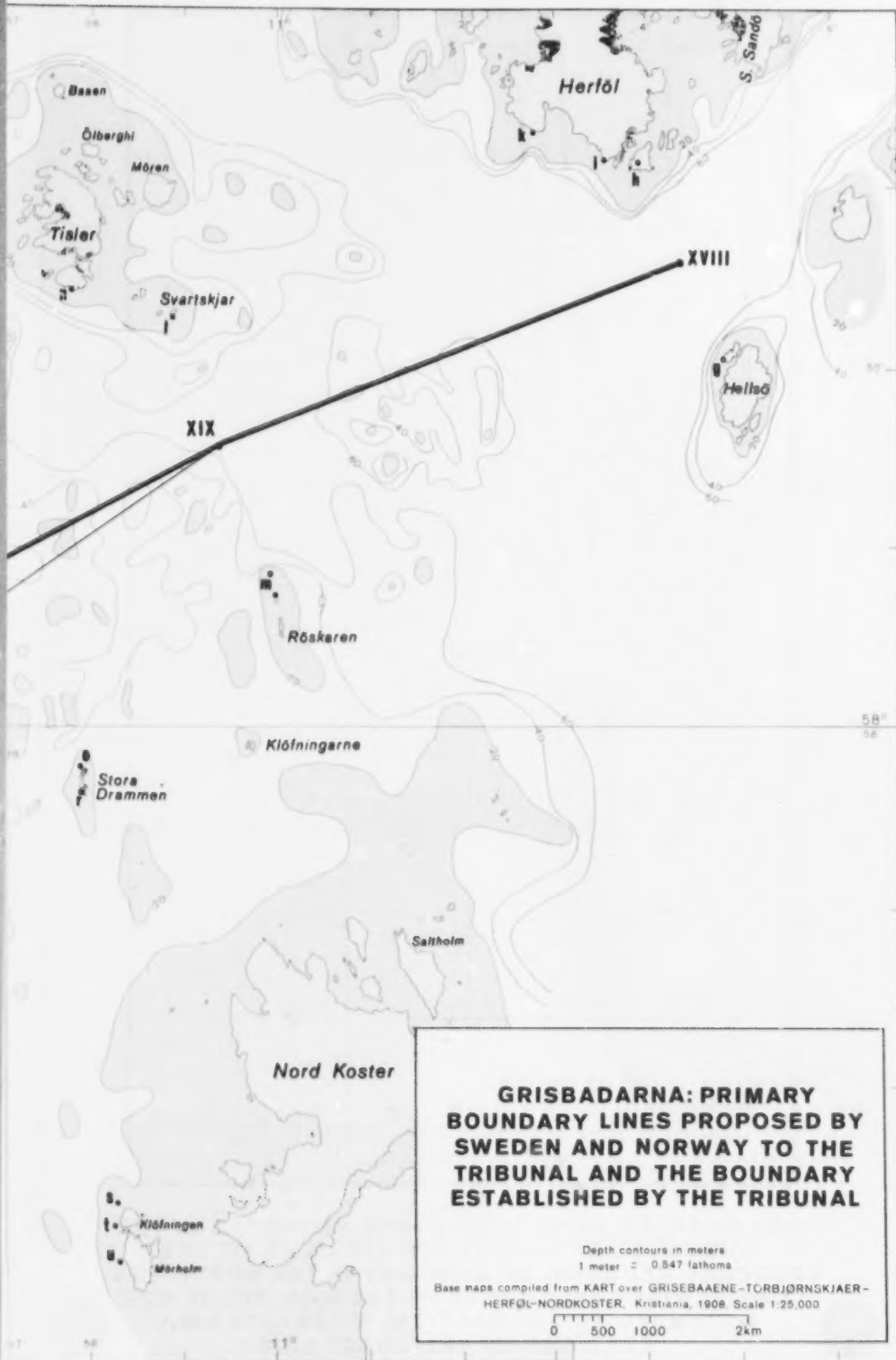
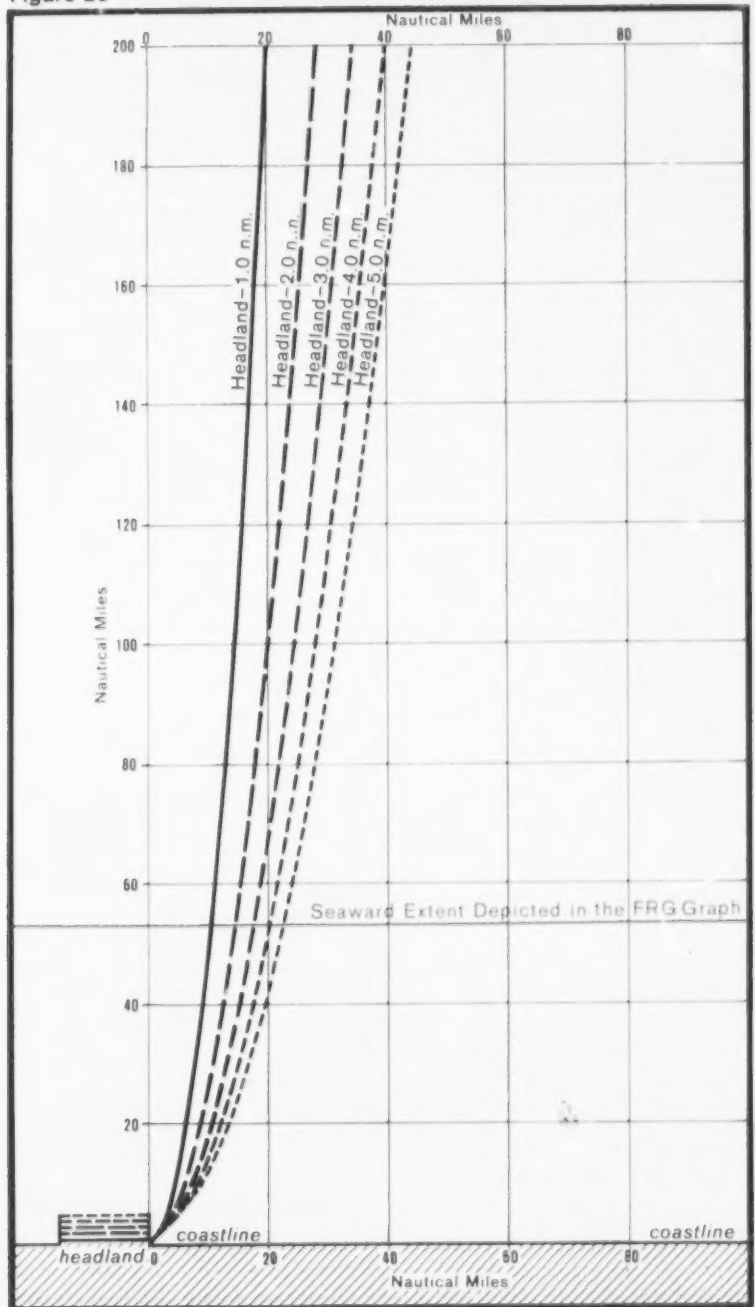


Figure 25



GRAPH BASED UPON THE METHOD EMPLOYED IN THE ARGUMENT OF PROFESSOR JAENICKE OF THE FEDERAL REPUBLIC OF GERMANY IN THE NORTH SEA CONTINENTAL SHELF CASES (PLEADINGS, VOL. II, P. 29), EXTENDED TO 200 NAUTICAL MILES (370 KM.) SEAWARD OF THE COAST LINE

Figure 26



Figure 27



Figure 28

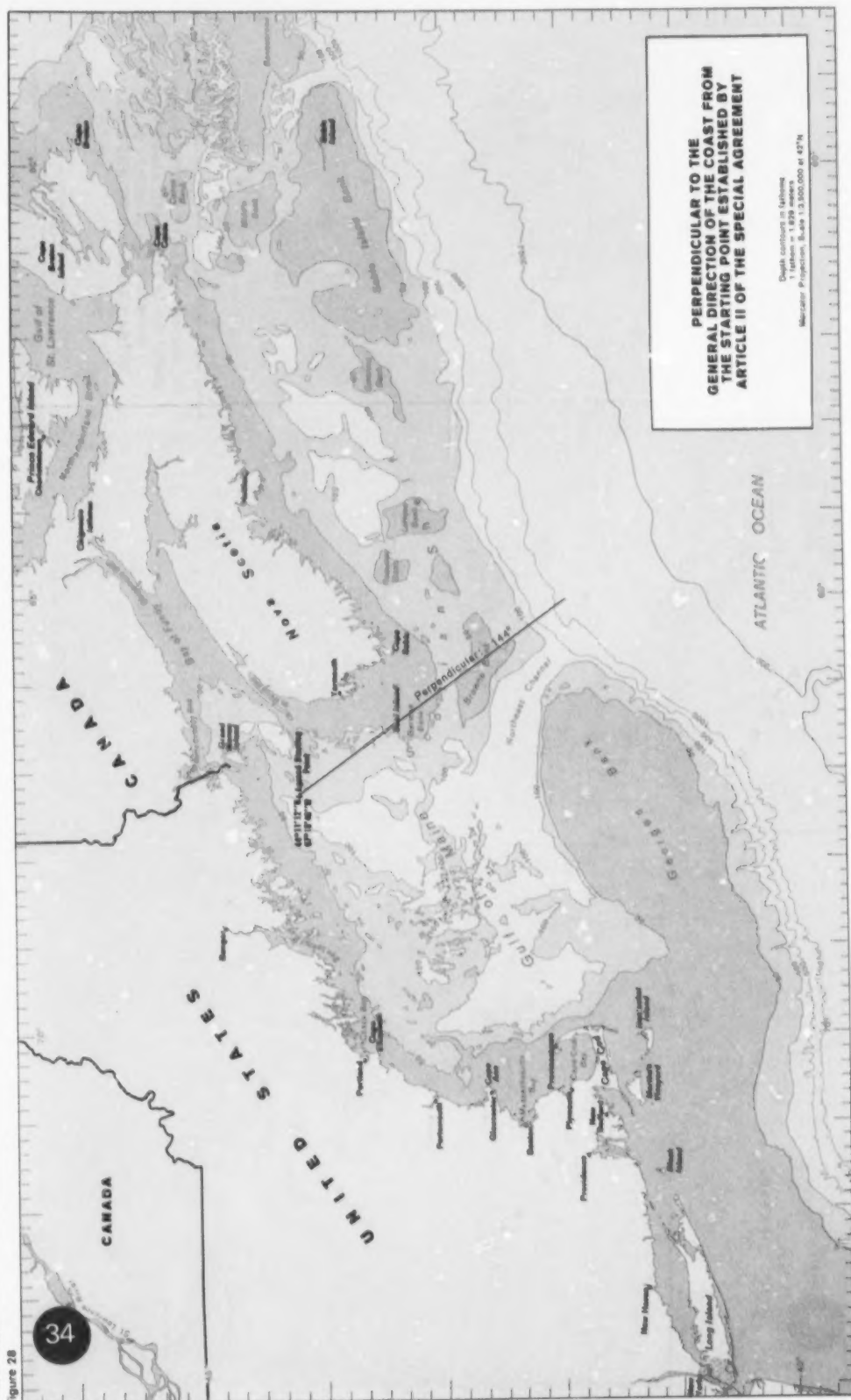


Figure 29

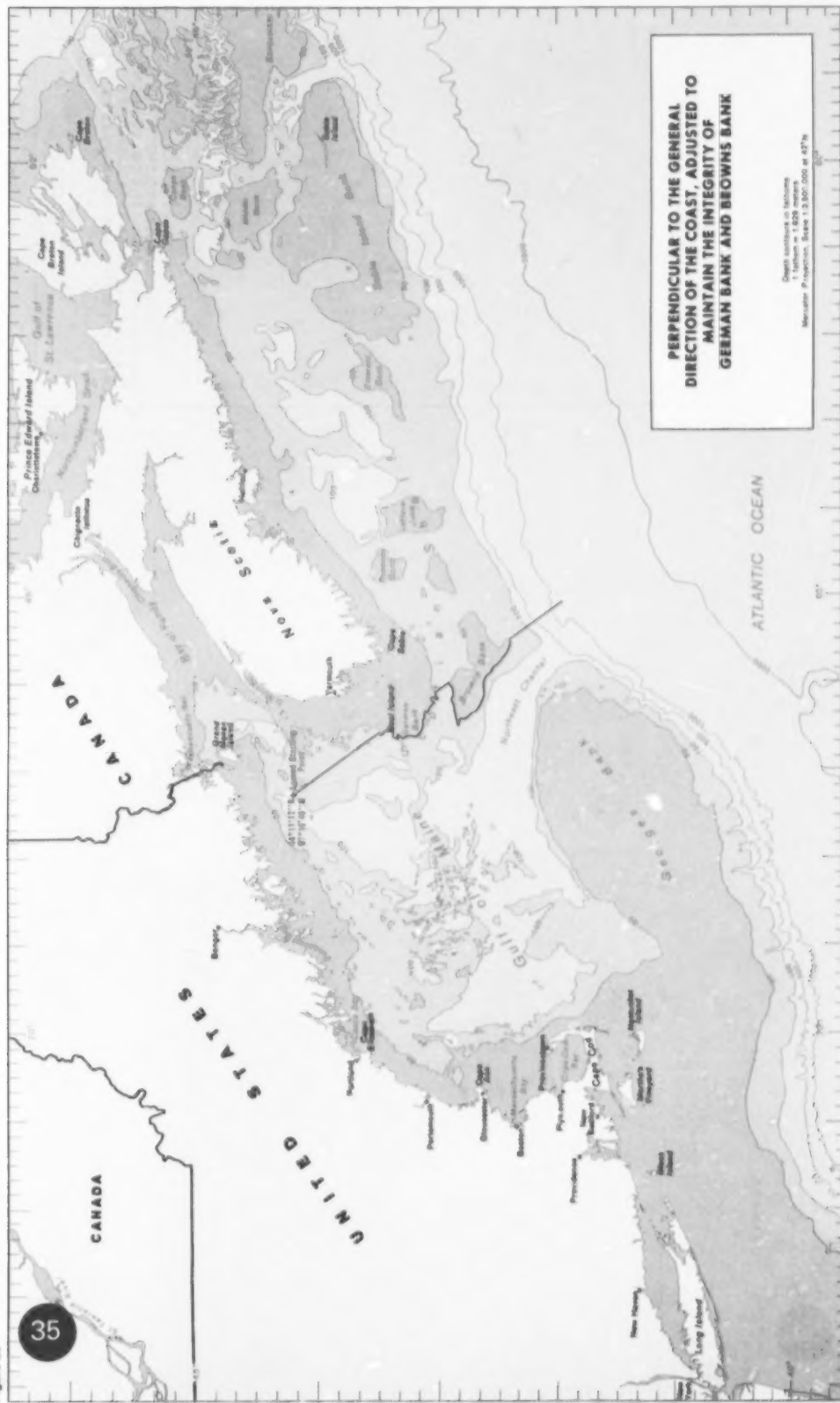


Figure 30

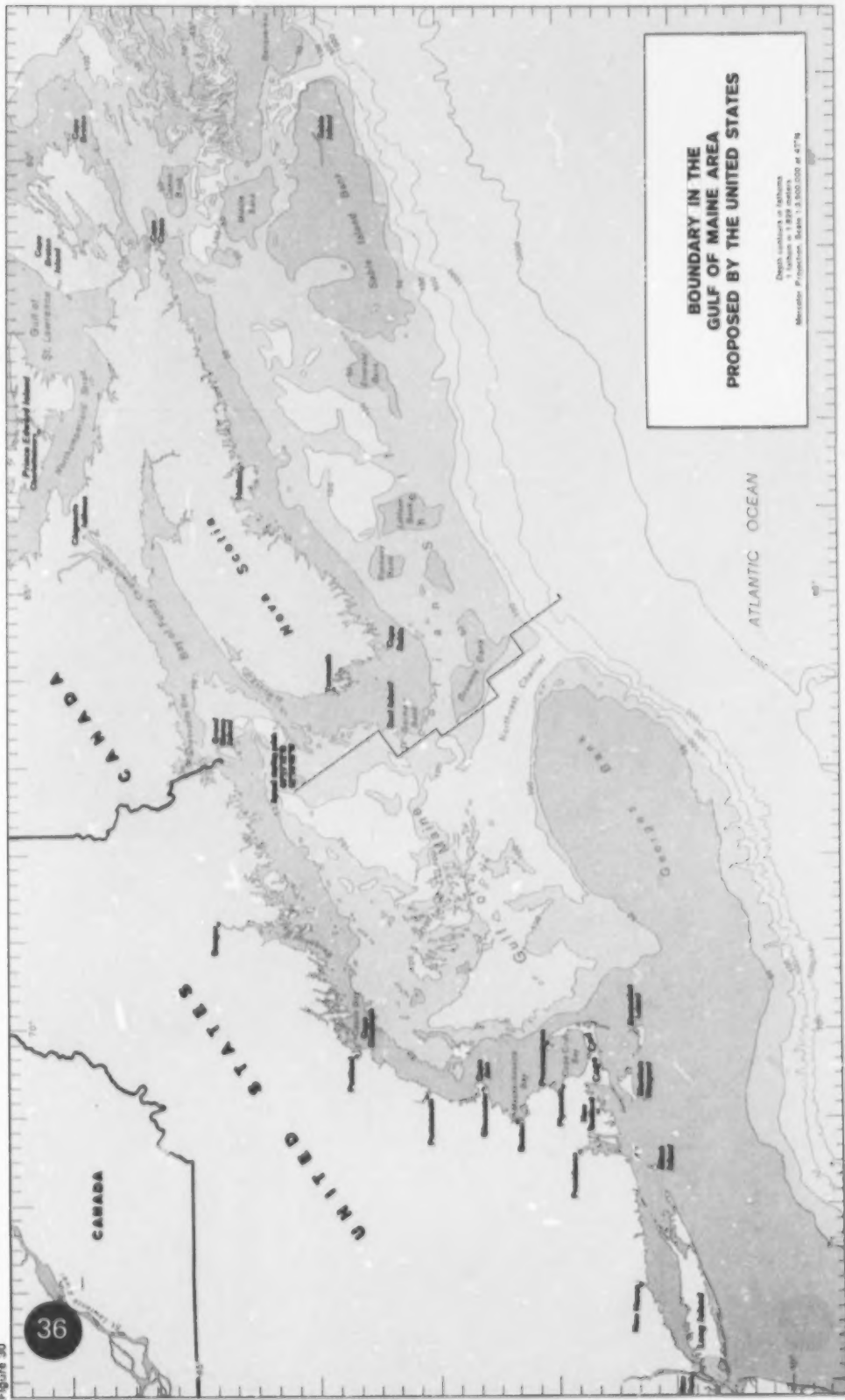


Figure 21

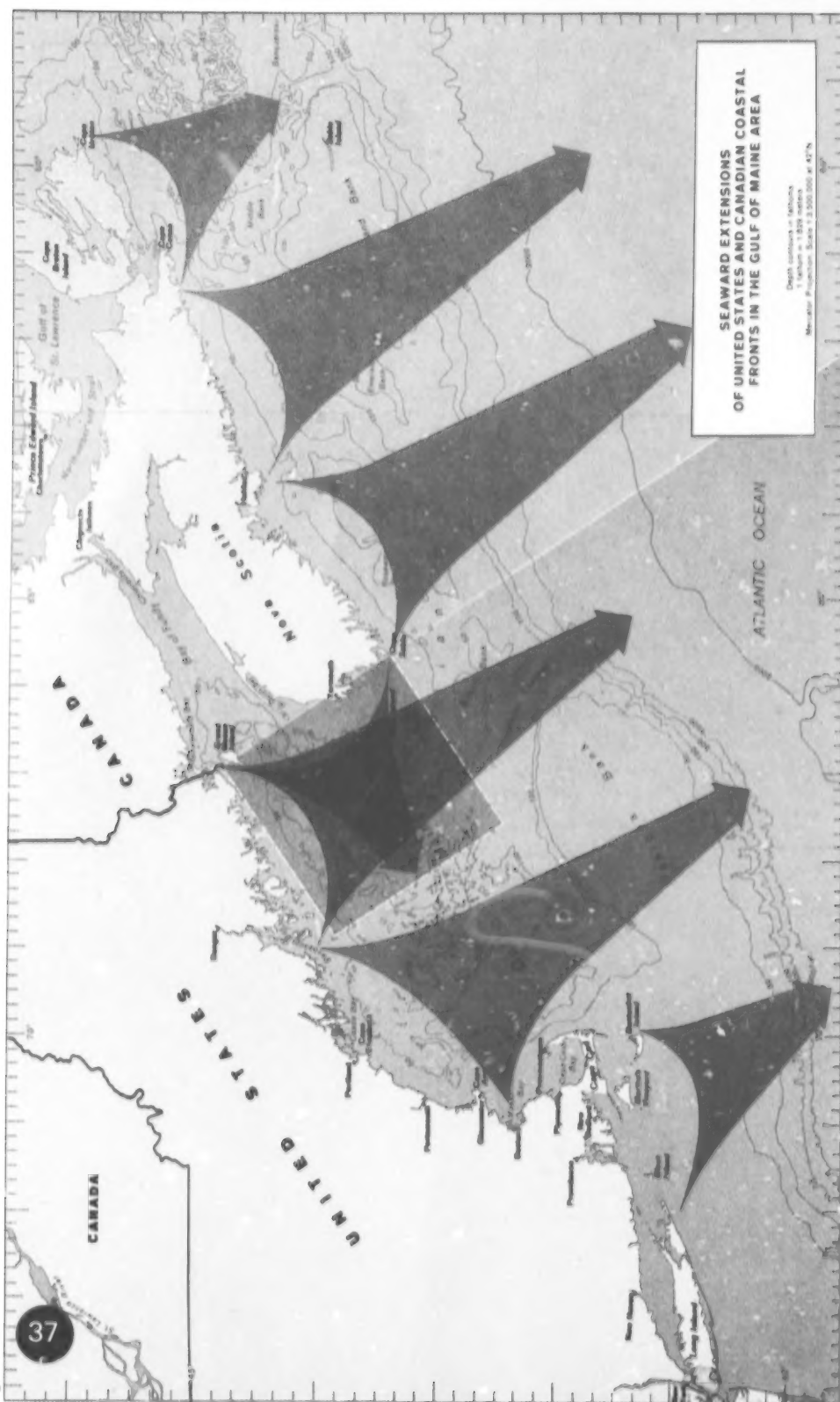






Figure 33

NORTH AMERICA

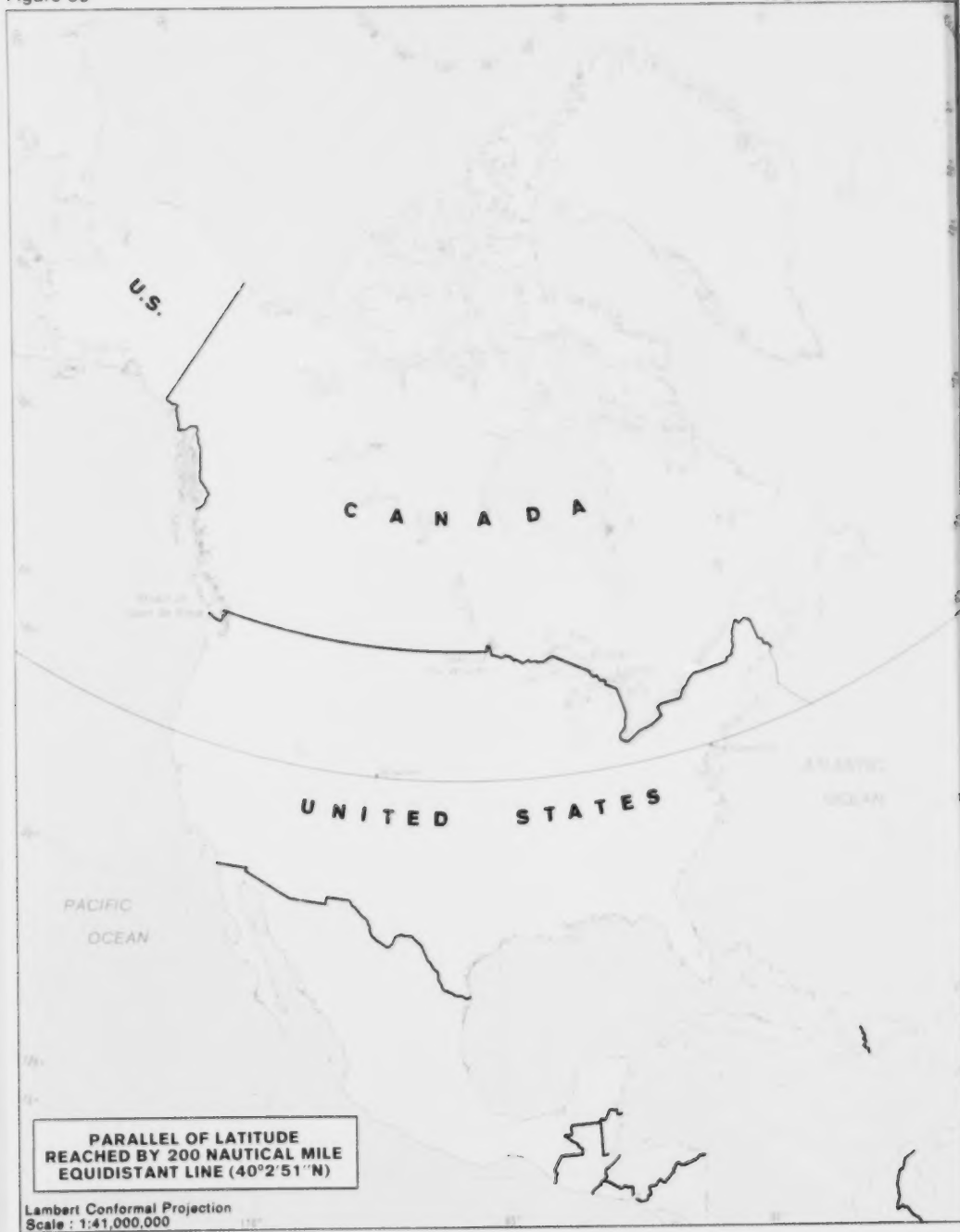
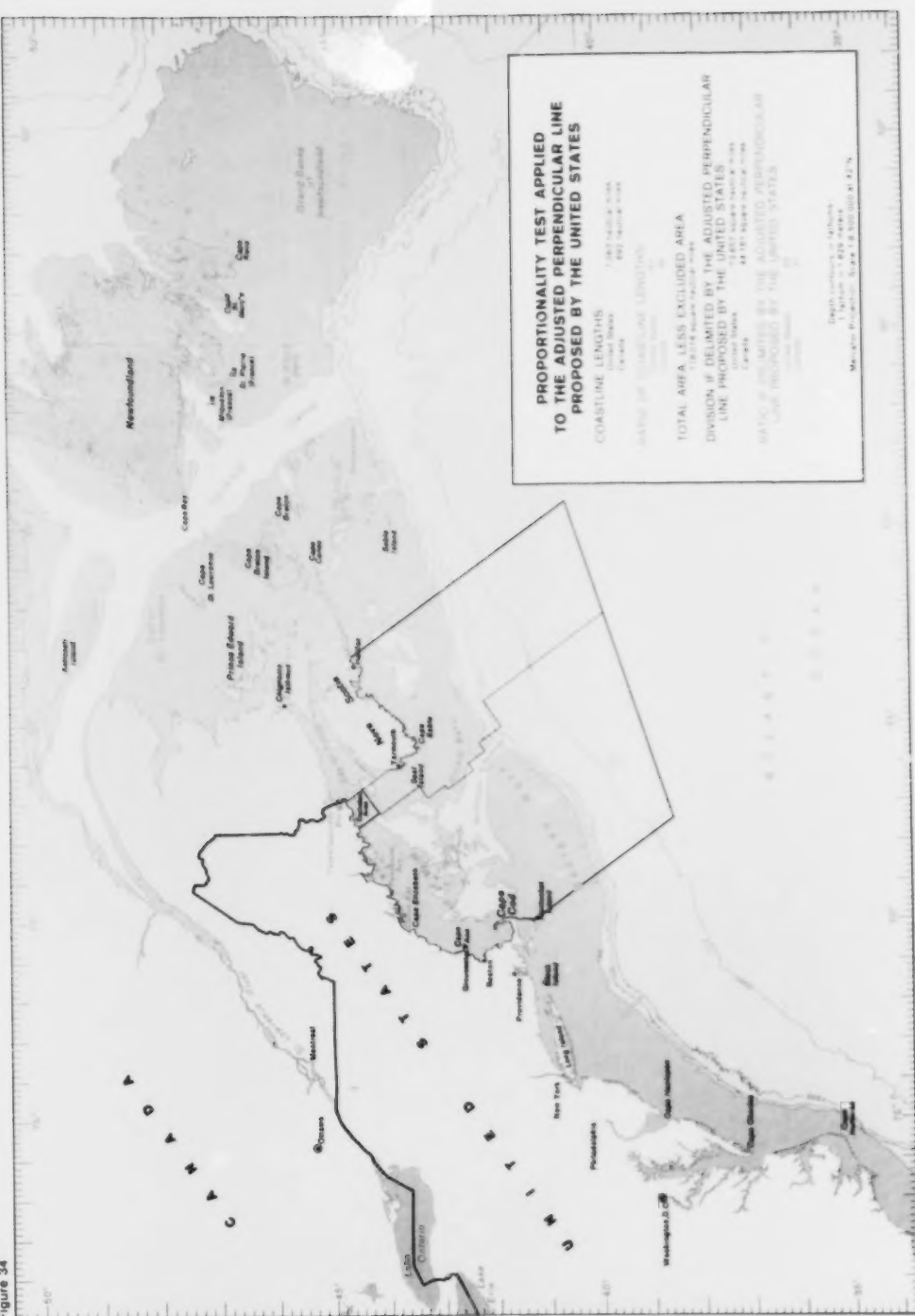


Figure 34



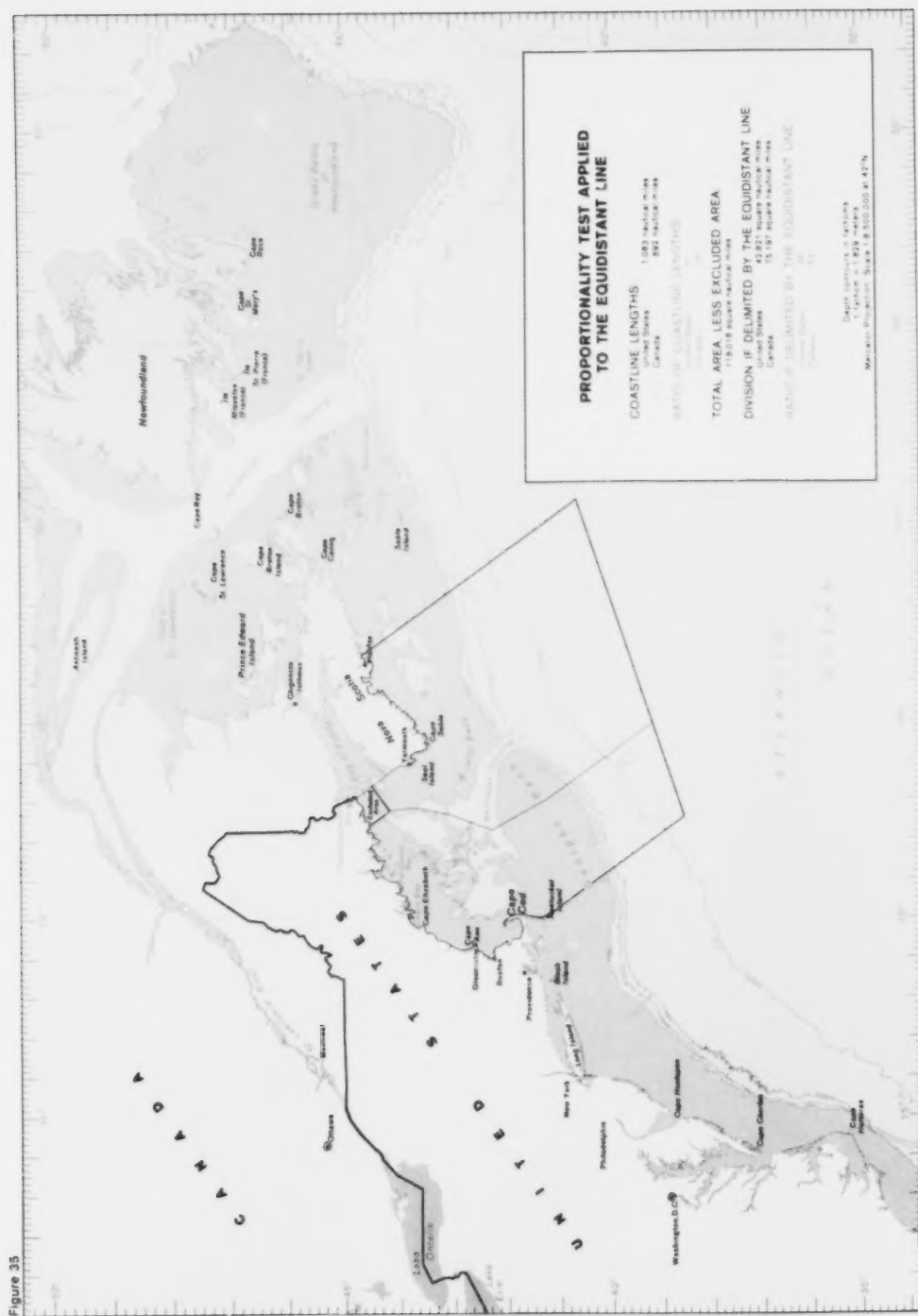
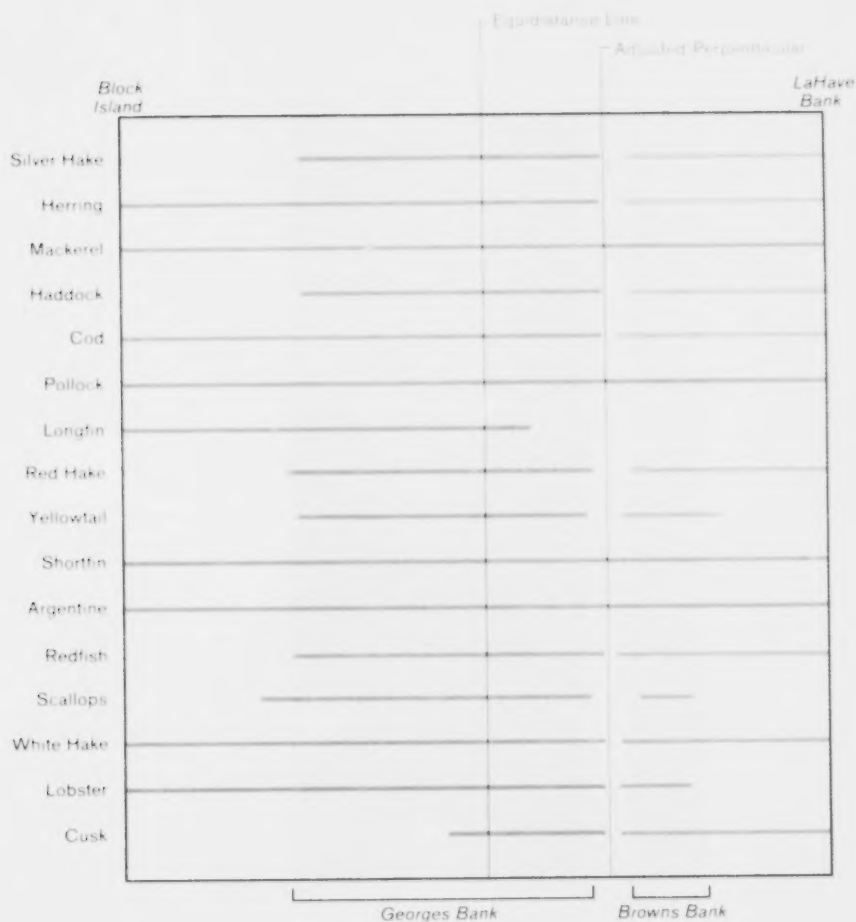
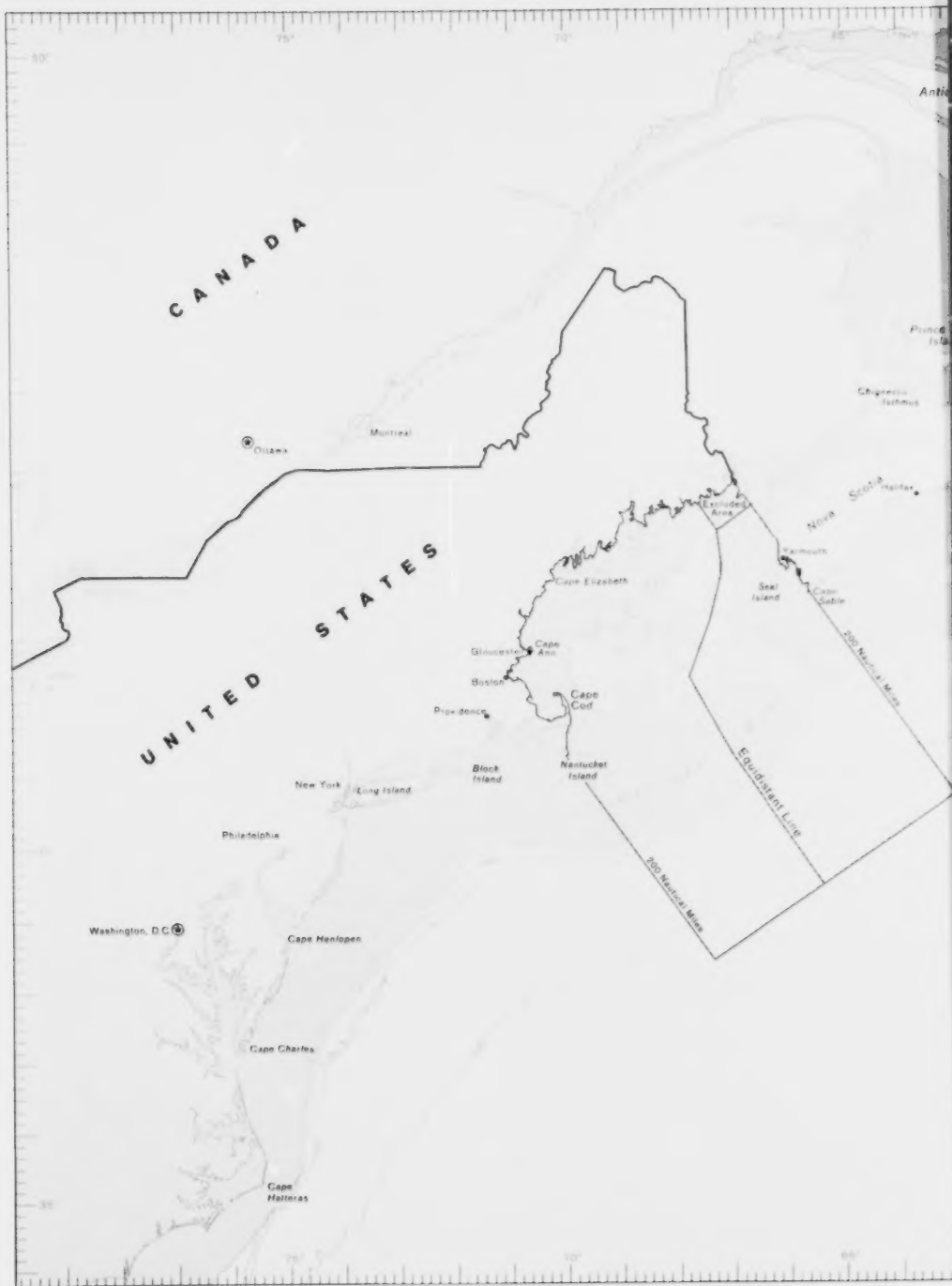


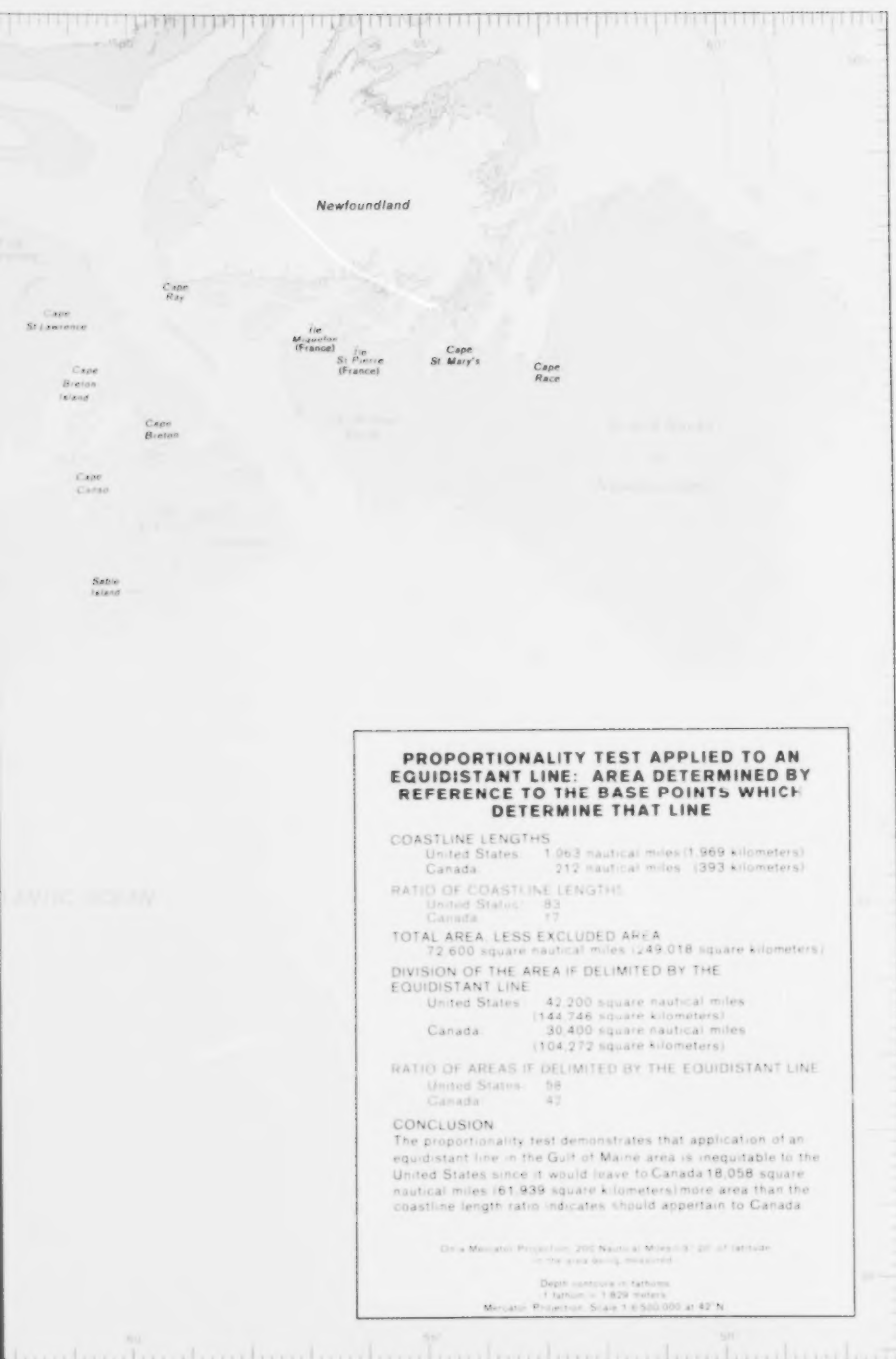
Figure 36

**DIVISION OF STOCKS OF COMMERCIALY IMPORTANT SPECIES BY
THE ADJUSTED PERPENDICULAR LINE AND THE EQUIDISTANT LINE**

**The Zone in which the Range of Stocks is Depicted Extends
from Block Island (Rhode Island), across Georges Bank,
the Northeast Channel, and Browns Bank to LaHave Bank**







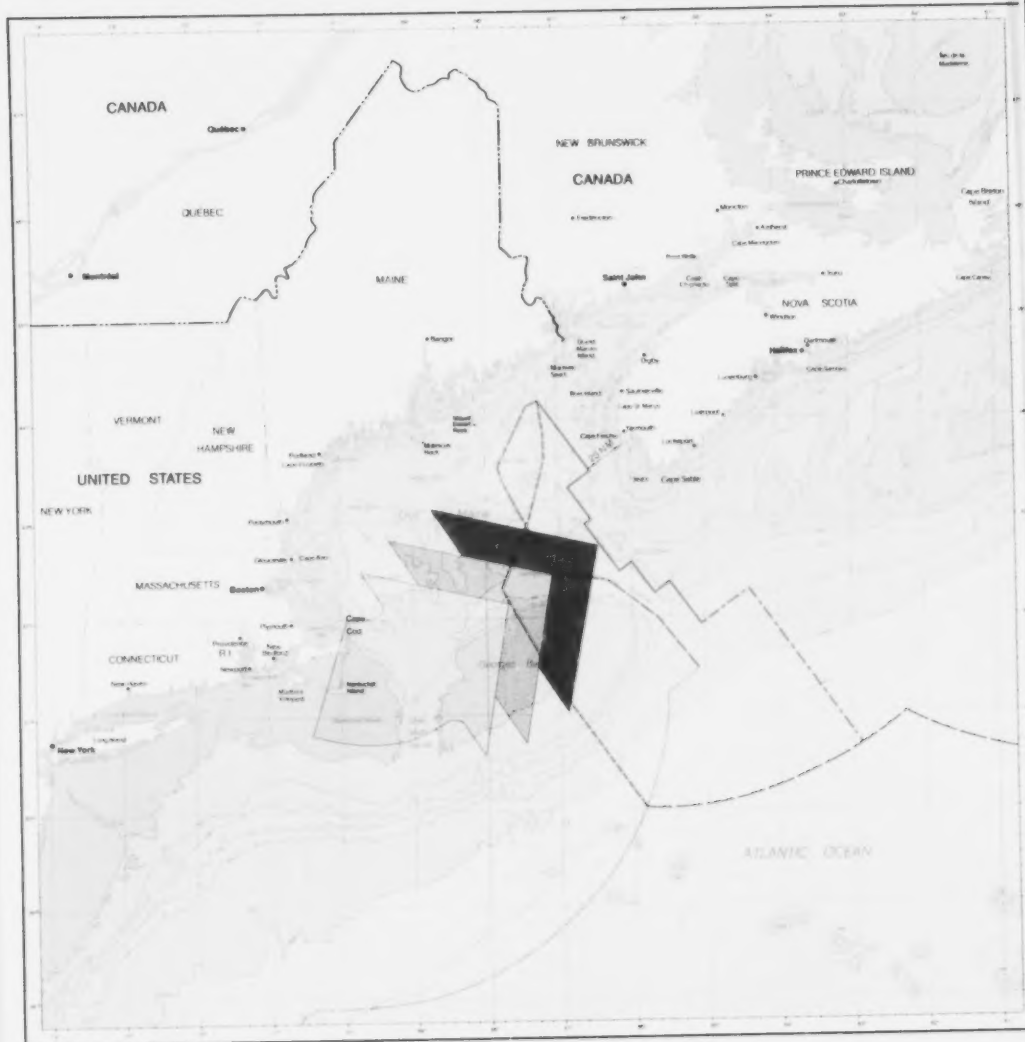


Figure 1
The Advancing
Claims of the
United States

Equidistance line utilized by Canada in issuing offshore oil and gas exploratory permits and recognized by the United States, 1965-1969

United States claim as promulgated in the United States Federal Register, 4 November 1976

"Adjusted perpendicular line" proposed by the United States, 27 September 1982

Extension of the "adjusted perpendicular line" as shown in Figure 34 of the United States Memorial

Outer limit of the United States 200-mile zone

Outer limit of the Canadian 200-mile zone

Depths in Meters
Projection: Mercator
Scale: 1 : 4 700 000 at 41° N

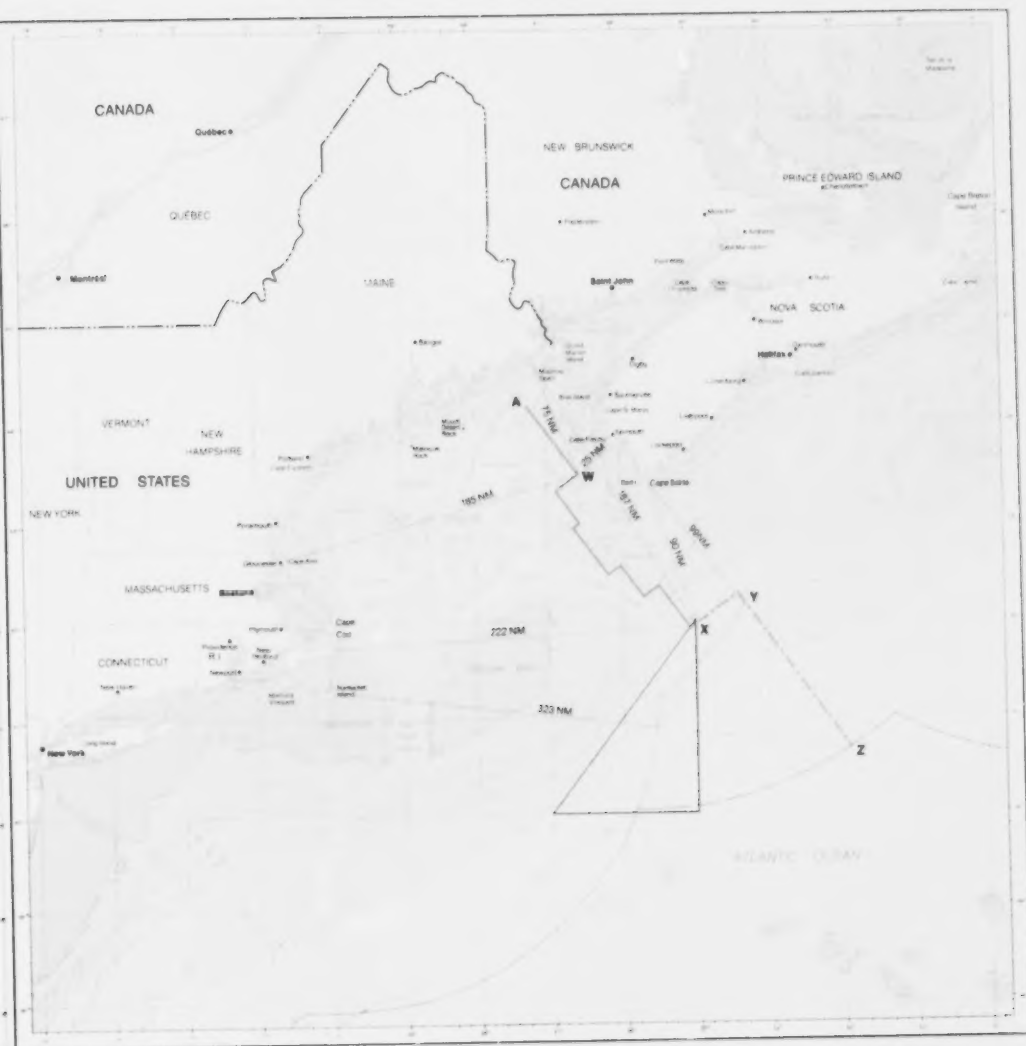


Figure 2
The 1982 United States Boundary Proposal, the Triangle and the 200-Mile Zones

This Figure illustrates the relationship of the 1982 United States boundary proposal to the triangle defined in Article II of the Special Agreement and to the outer limits of the 200-mile exclusive economic zone of the United States and the 200-mile fishing zone of Canada.

The distances shown are measured between the United States line and points on the coasts of Canada and the United States. The United States line cannot intersect the outer limit of the United States 200-mile zone within the triangle.

Adjusted perpendicular line proposed by the United States, 27 September 1982

Extension of the "adjusted perpendicular line" as shown in Figure 34, United States Memorial

Outer limit of the United States 200-mile exclusive economic zone, as claimed by the United States. This outer limit has been extended to intersect the extension of the line proposed by the United States

Outer limit of the Canadian 200-mile zone

Distances in Nautical Miles
Projection: Mercator
Scale: 1 : 4 700 000 at 41° N

Figure 3

Effects Produced by Selective Representation of Bathymetric Contours

A Contours at 60, 300, 500 and 1000 metres

Note: The 60-metre contour defines the Great South Channel.

B Contours at 60, 30, 300, 500, 1000 and 2000 metres

Note: The addition of the 100-metre contour defines the Northeast Channel and Browns Bank.

C Contours at 40, 60, 240, 300, 1000 and 2000 metres

Note: The addition of the 40-metre contour improves the definition of Georges Bank and the addition of the 240-metre contour shows the sill of the Northeast Channel.

D Contours at 50, 100, 500, 1000 and 2000 fathoms

Note: These are the contours shown on the United States base map. They do not define the Great South Channel or Georges Bank.

E Contours at 60, 100, 200, 1000, 2000, 3000 and 4000 metres

Note: These are the contours shown on the Canadian base map. They define the seaward rim of the Gulf of Maine: the Nantucket Shoals, the Great South Channel, Georges Bank, and the shoal areas of southwest Nova Scotia. Within the Gulf of Maine, they illustrate the many superficial depressions that characterize this area.

Projection - Mercator
Scale - 1:10 000 000 at 41° N



A



B



D



C



E

Figure 4

**Juxtaposition of
Eastern Canada and
the Eastern United
States East of
Longitude 96° West**



Regions of Canada lying south
of regions of the United States



Regions of the United States
lying north of regions of
Canada

Note: These regions lie in an
east-west relationship to each
other.

Projection - Lambert Conformal
Scale - 1:2 000 000





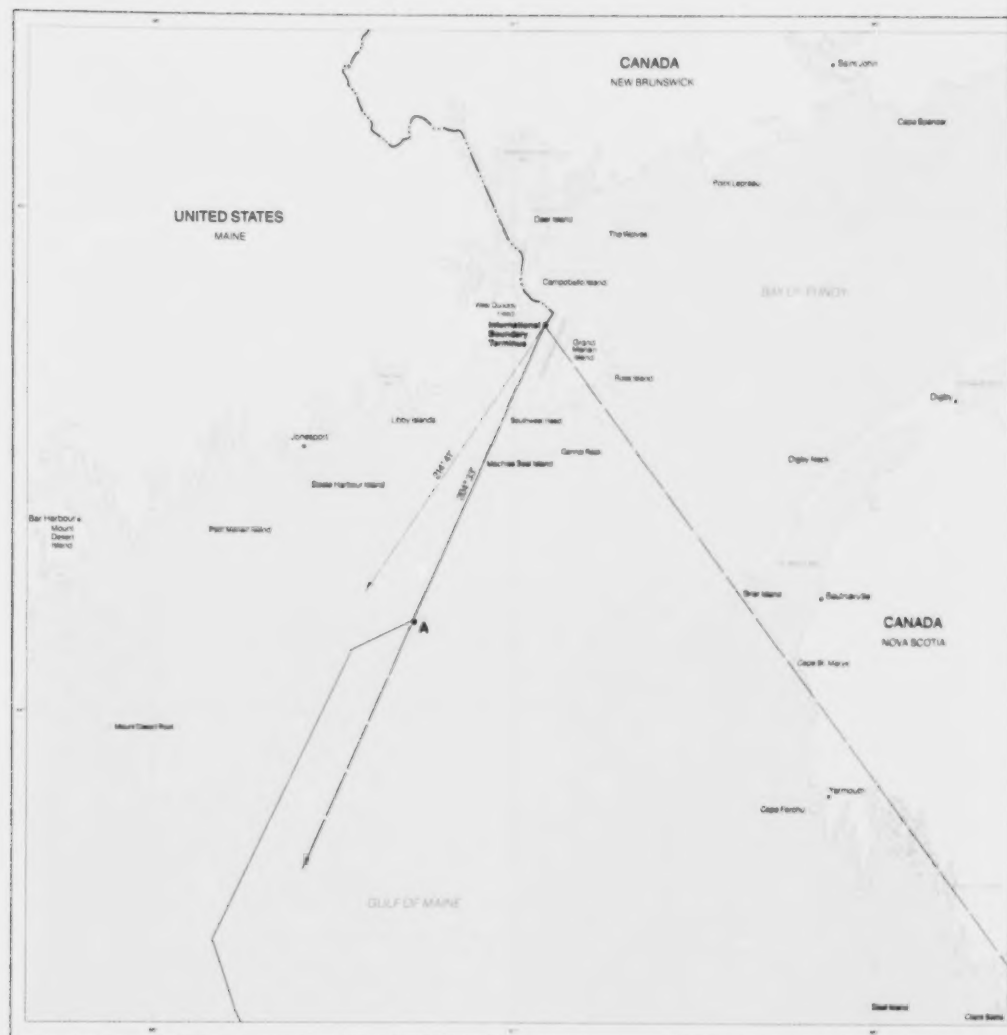


Figure 5

The International Boundary Terminus and the Agreed Point of Commencement (Point A) of the Single Maritime Boundary

Extension of the final azimuth of the international boundary

Line of bearing between the international boundary terminus and Point A

"Perpendicular to the general direction of the coast at the international boundary terminus" as depicted in Figure 27, United States Memorial

The United States claim at 4 November 1976 from Point A

Projection - Mercator
Scale - 1 : 800,000 at 45° N



Figure 7
**General Direction of
the Coasts in the
Gulf of Maine Area**

General direction of the coasts
as defined by Canada

General direction of the coasts
as defined by the United
States

Yarmouth to Boston azimuth
(067.2°) described in the
United States Memorial as the
general direction of the coast
at 056.9

Graphic in Miles
Projection: Mercator
Scale: 1 : 4,750,000 at 41° N

Figure 8

Opposite Coasts



51

Figure 9

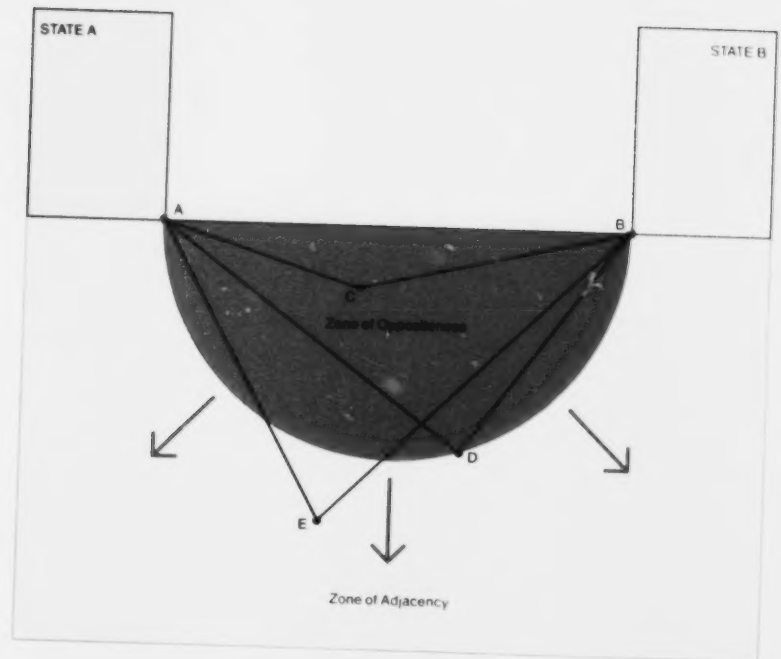
Adjacent Coasts



52

Figure 10

Mixed Relationship
of Oppositeness and
Adjacency



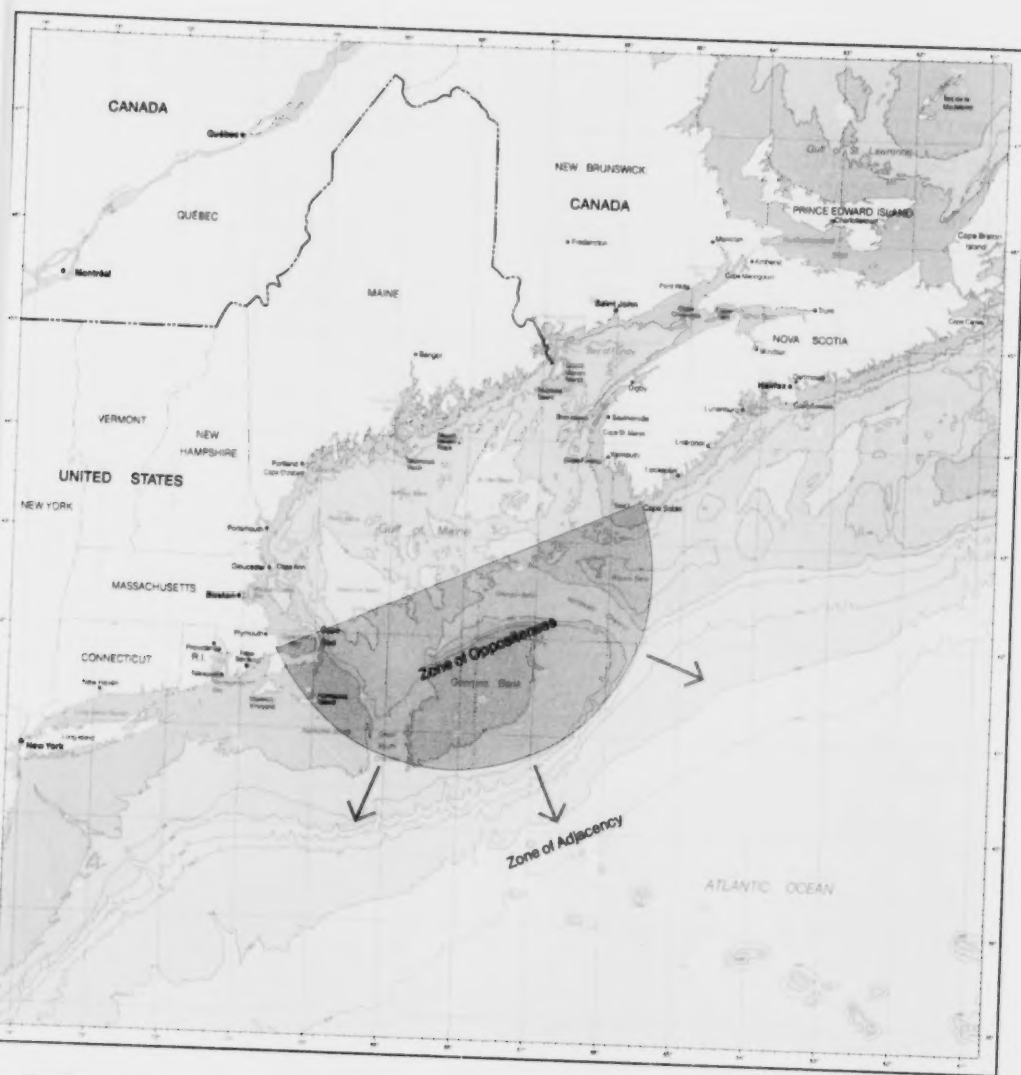


Figure 11
Application to the
Outer Area of the
Mathematical
Analysis of the
Opposite or
Adjacent Relation-
ship of the Coasts
Relative to the Area
to be Delimited

Depth in Metres
Projection - Mercator
Scale - 1 : 4,100,000 at 41° N

Figure 13

The Bay of Fundy and Comparable Bodies of Water

A
Bay of Fundy

B
The Gulf–Strait of Hormuz

C
Gulf of Finland

D
Gulf of Gabes

Note: Each of these bodies of water is depicted on a Lambert Conformal projection at a scale of 1:3 000 000



A



C



B



D



A

Figure 14

**The English Channel and the Gulf of Maine Area:
The Relevant Coasts**



Coasts abutting the "Atlantic region" and "outer area"



Coasts abutting the English Channel and "inner area"

Note: The Gulf of Maine area and the area involved in the Anglo-French Continental Shelf Arbitration are shown at a scale of 1:10 000 000.



B

A
 Projection - Mercator
 Scale - 1:10 000 000 at 50° N

B
 Projection - Mercator
 Scale - 1:10 000 000 at 41° N



Figure 15
Seaward
Extensions of the
Canadian and
United States
Coasts

The radial extension of coastal State jurisdiction in accordance with the distance principle as the legal basis of title. Radiating arcs of circles drawn from the coasts in the Gulf of Maine area at intervals of 3 and 12 miles.

Depth in Meters
 Projection: Mercator
 Scale: 1:4,700,000 at 41°N

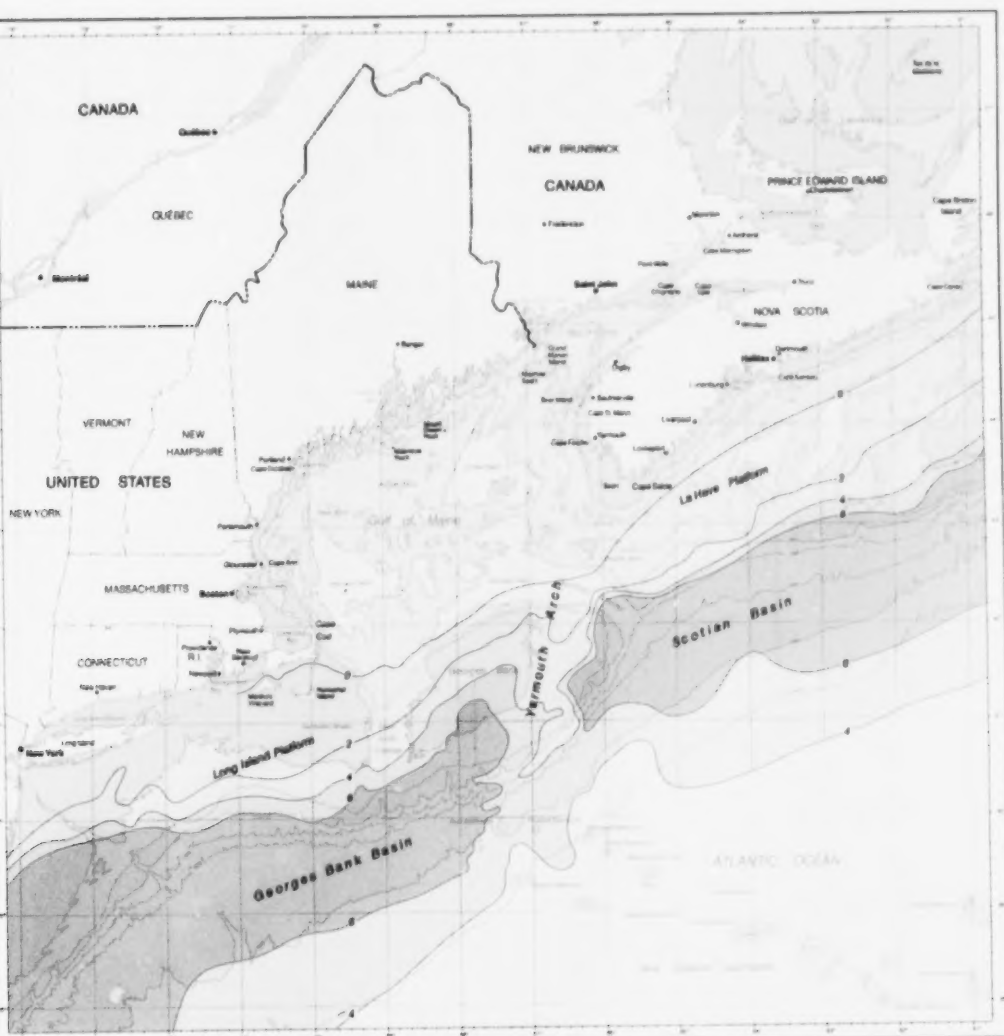
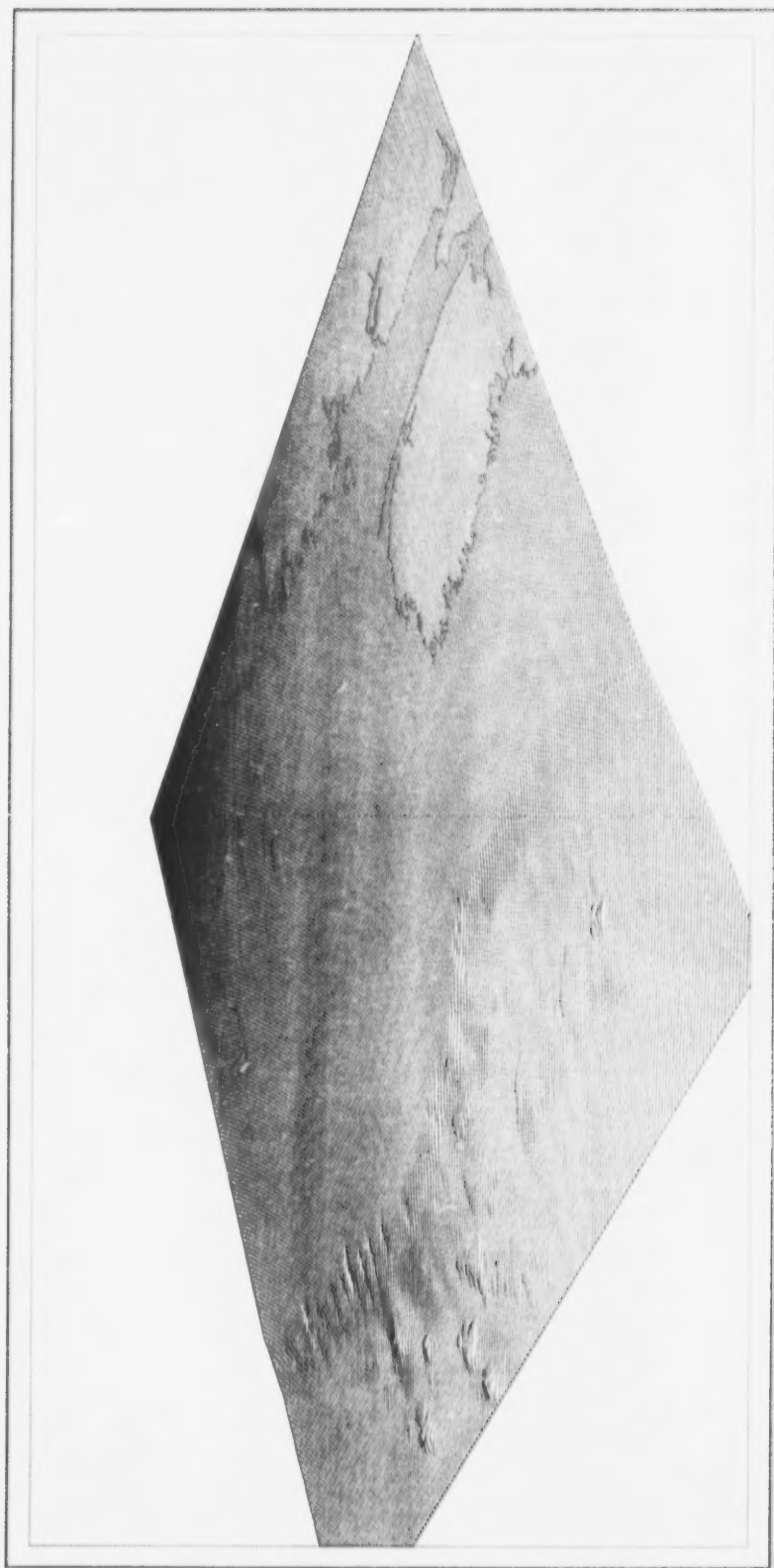


Figure 16
Subsurface
Sedimentary Basins

This Figure shows the major sedimentary basins of the Atlantic margin and the thickness of sediment fill in kilometres. The darker red colour represents the early depositional areas that were separated by the Yarmouth Arch. The lighter red area and beyond shows the thickness of sediments that are continuous across both basins. Note the projection of the Scotian Basin from the northeast beneath the Northeast Channel and Georges Bank, and the partial separation of the Scotian Basin and Georges Bank Basin by the Yarmouth Arch. Note also the trend of the New England Seamount Chain seaward of the Great South Channel area.

Depths in Metres
Projection - Mercator
Scale - 1 : 4 700 000 at 41° N



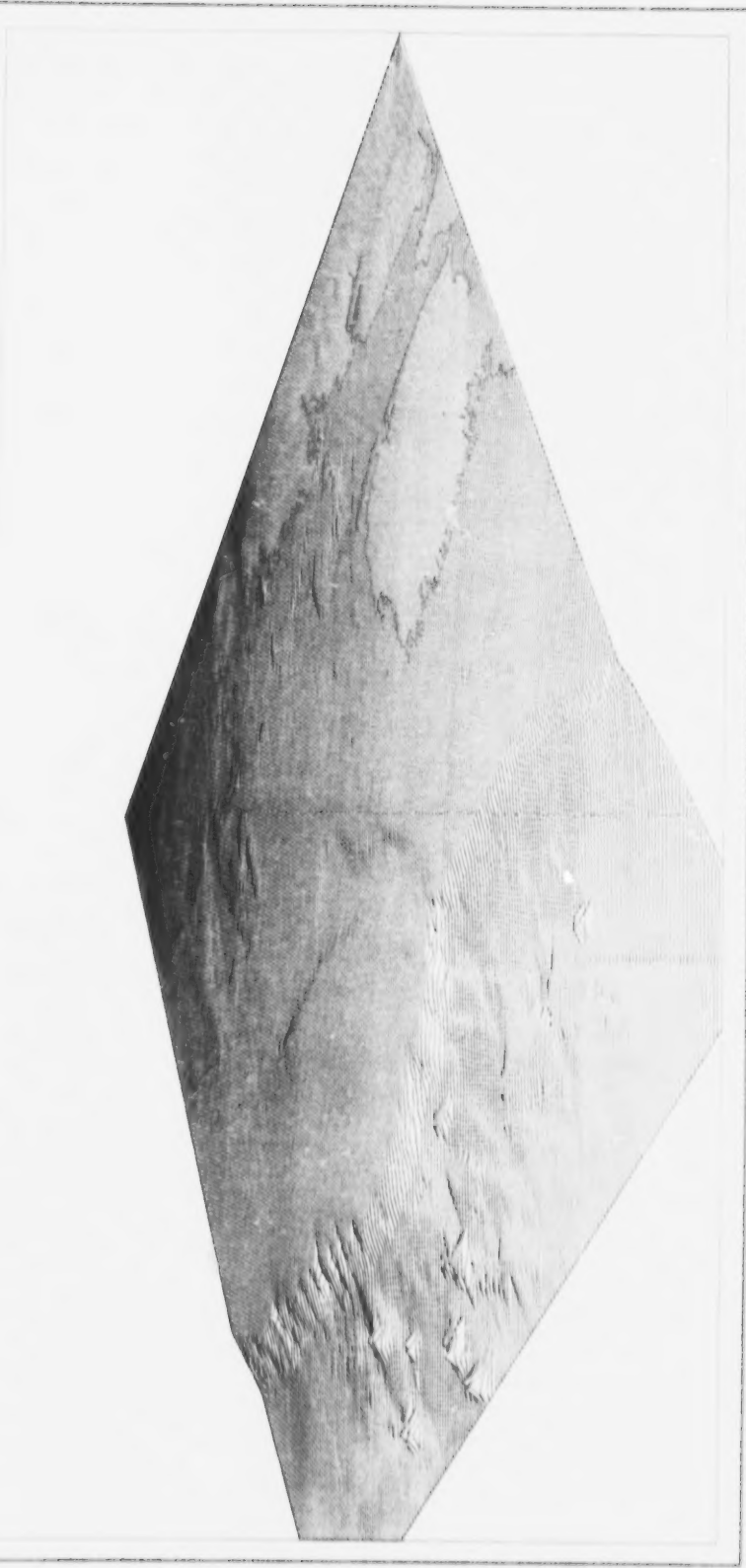


Figure 17

**Computer
Generated
Perspectives of the
Sea Floor in the
Gulf of Maine Area**

A Perspective image with 2X
vertical exaggeration

B Perspective image with 5X
vertical exaggeration

These images reveal the uniformity in the topography of the continental shelf, even when exaggerated to 2X and 5X. The only truly discernible features are the continental slope and the New England Seamount Chain.



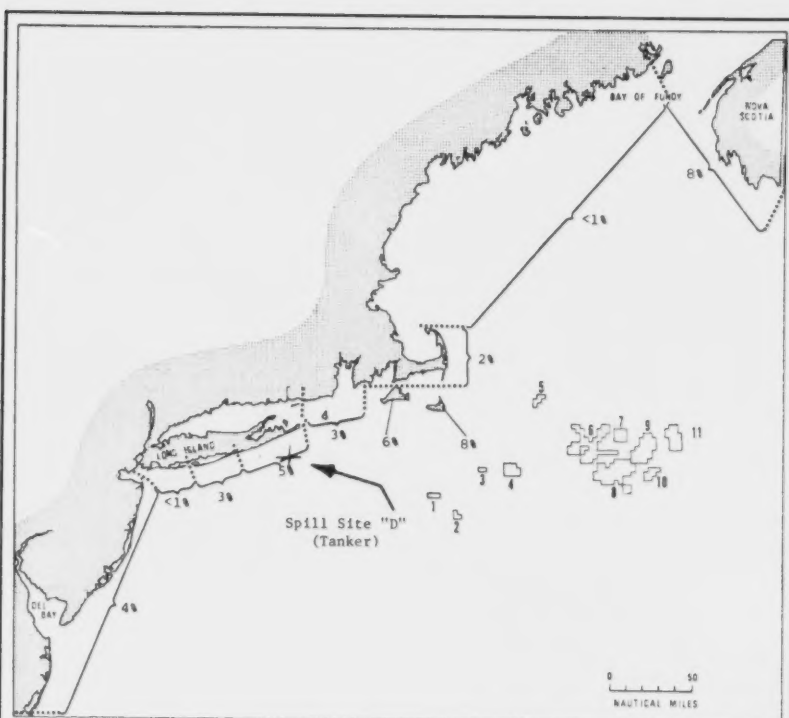


Figure III-14.

Estimated probabilities of at least one oilspill larger than 1,000 bbls occurring and coming ashore at various locations on the North Atlantic coast. Estimates assume leasing of all proposed tracts and tankering of the oil to New York/New Jersey.

Figure 19

Estimated Oil Spill
Probabilities from
OCS Oil and Gas
Lease Sale No. 42
United States
Department of the
Interior, Bureau of
Land Management:
*Final Environmental
Impact Statement*,
Vol. 2. Washington,
D.C.: Government
Printing Office, 1977

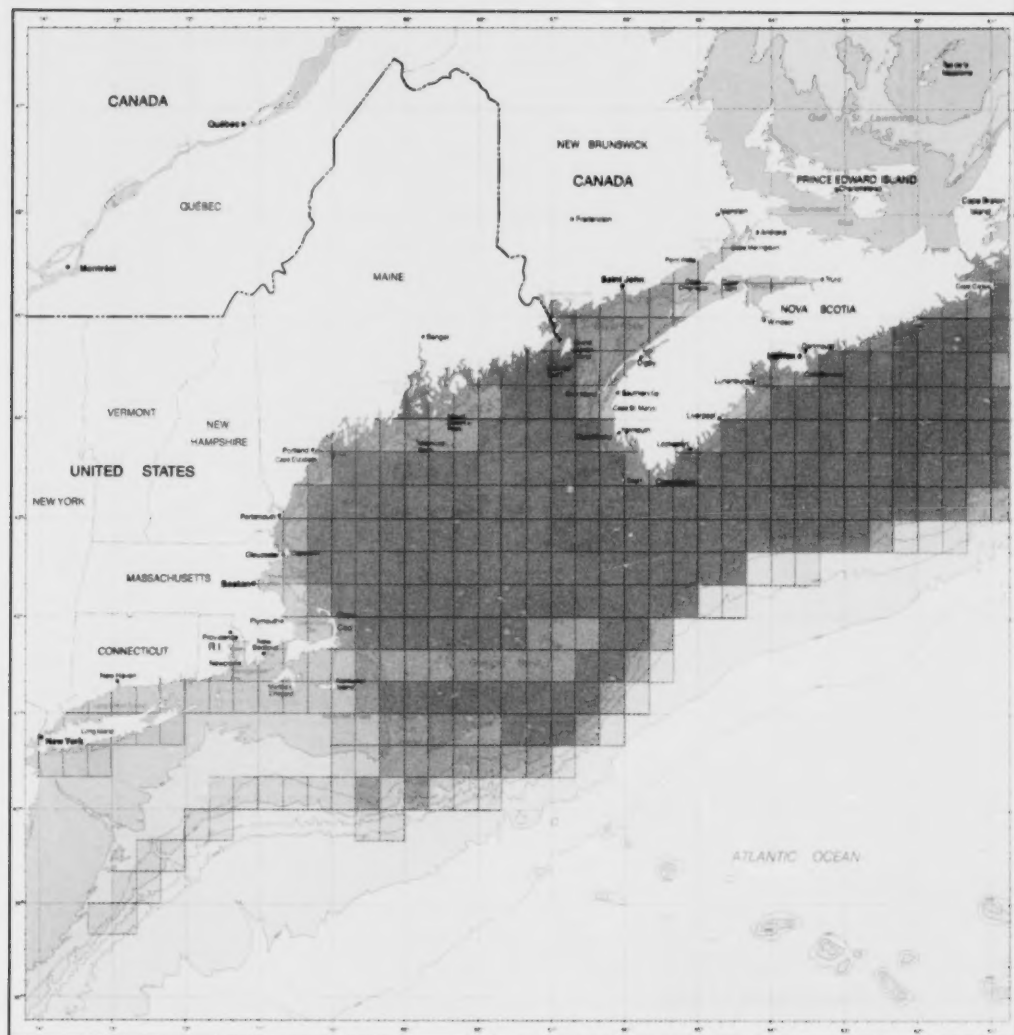


Figure 20
Northern Species

This Figure illustrates species of fish whose distribution in the Gulf of Maine area generally does not extend southwest of the Great South Channel-Cape Cod-Nantucket Shoals transition zone.

Species whose distribution or range is included are:

- American plaice
- Argentine
- Cod
- Cusk
- Haddock
- Pollock
- Redfish
- White hake

Area of distribution for 6-8 species

Area of distribution for 4-5 species

Area of distribution for 1-3 species

Depths in Metres
Projection - Mercator
Scale - 1 : 4 700 000 at 41° N

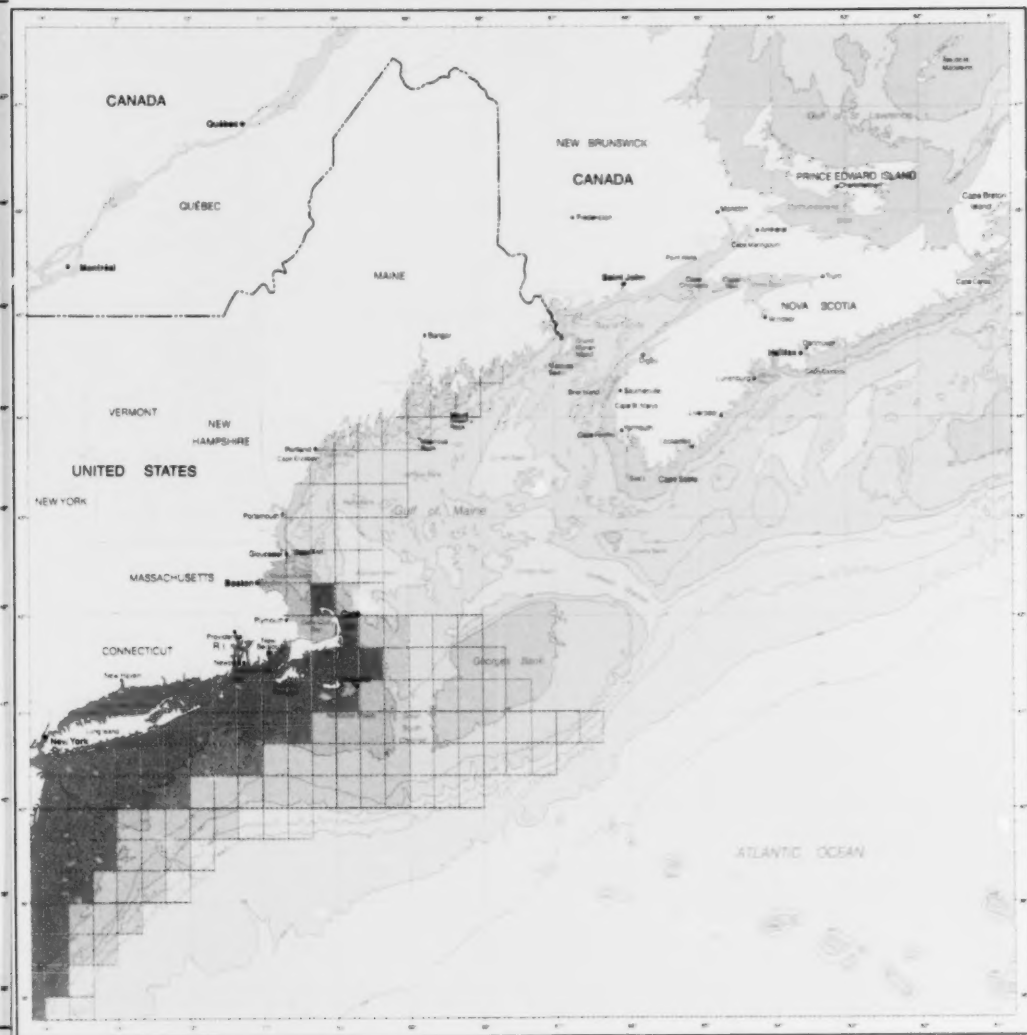


Figure 21
Southern Species

This Figure illustrates species of fish and invertebrates whose distribution in the Gulf of Maine area generally does not extend northeast of the Great South Channel - Cape Cod - Nantucket Shoals transition zone.

Species whose distribution or range is included are:
Black sea bass
Summer flounder
Butterfish
Bay scallop
Bluefish
Weakfish
Atlantic menhaden
Scup

- Area of distribution for 6-8 species
- Area of distribution for 4-5 species
- Area of distribution for 1-3 species

Depths in Meters
Projection - Mercator
Scale - 1 : 4,700,000 at 41° N

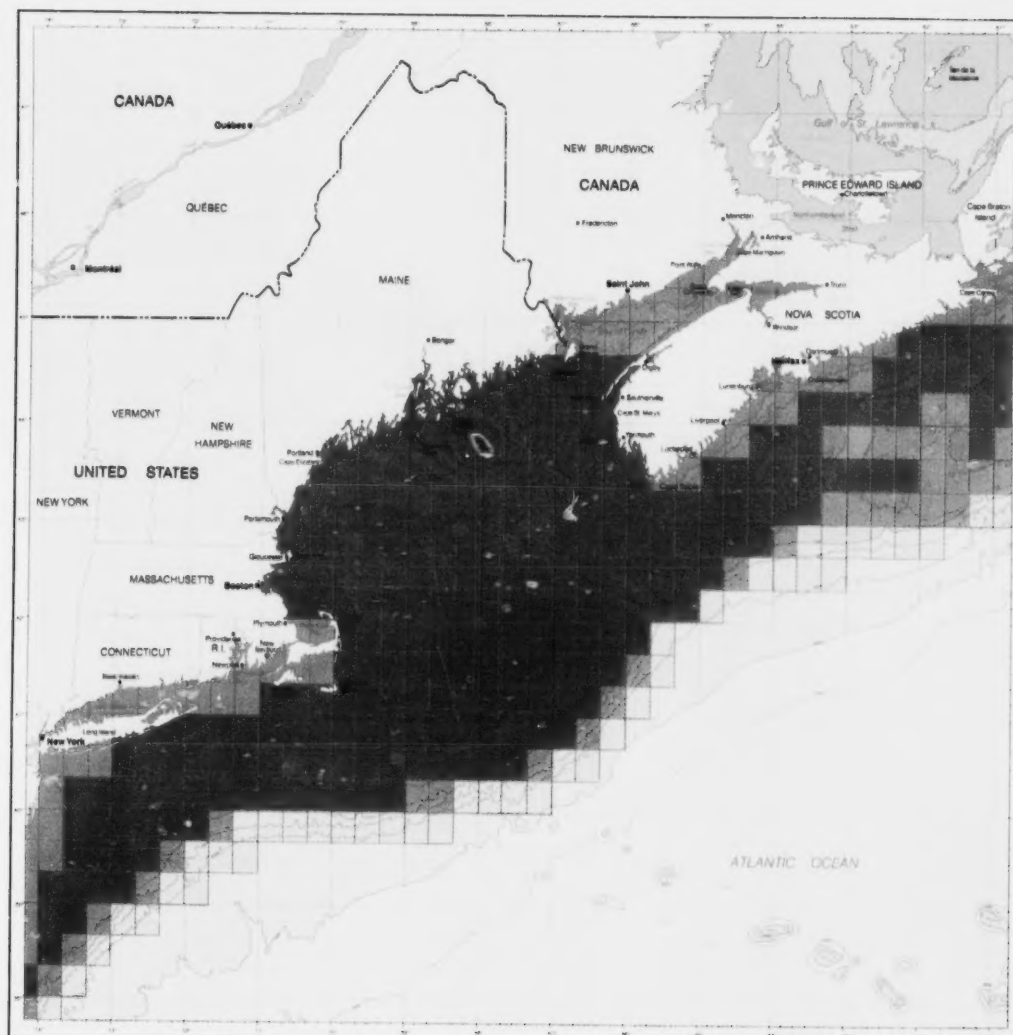


Figure 22

Wide-Ranging Species

This Figure illustrates species of fish and invertebrates in the Gulf of Maine area whose distribution is wide-ranging.

Species whose distribution or range is included are:

- Atlantic herring
- Atlantic mackerel
- Sea scallops
- Illex squid
- Lobster
- Red hake
- Silver hake
- Yellowtail flounder

Area of distribution for 6-8 species

Area of distribution for 4-5 species

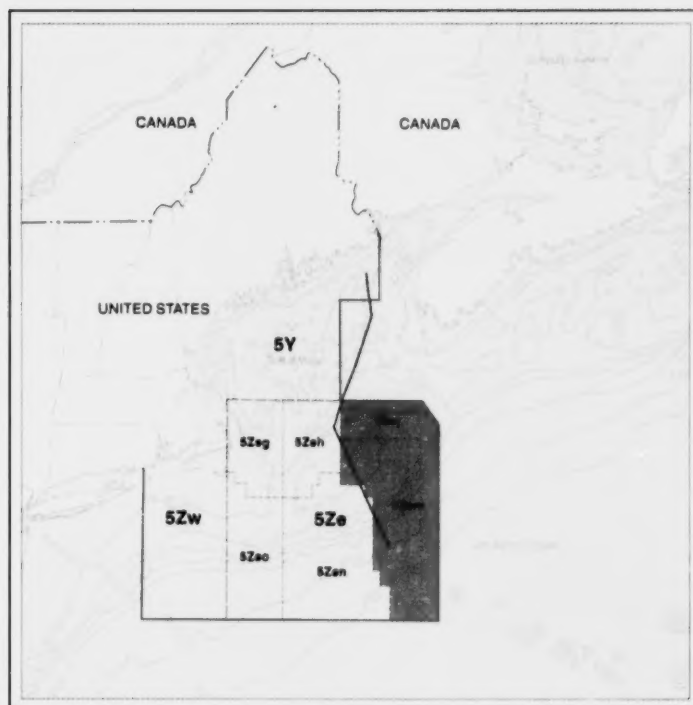
Area of distribution for 1-3 species

Depths in Meters
PROJECTION: Mercator
Scale: 1:4,700,000 at 41° N

Figure 25

**Northwest Atlantic
Fisheries Organi-
zation (NAFO)
Subarea 5**

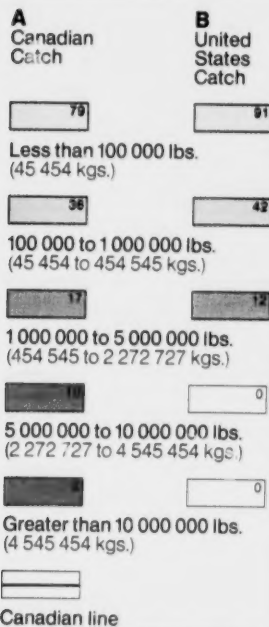
Statistical units 5Zej and 5Zem
correspond roughly to the
area claimed by Canada within
subdivision 5Ze.



Projection - Mercator
Scale - 1 10 000 000 at 41° N

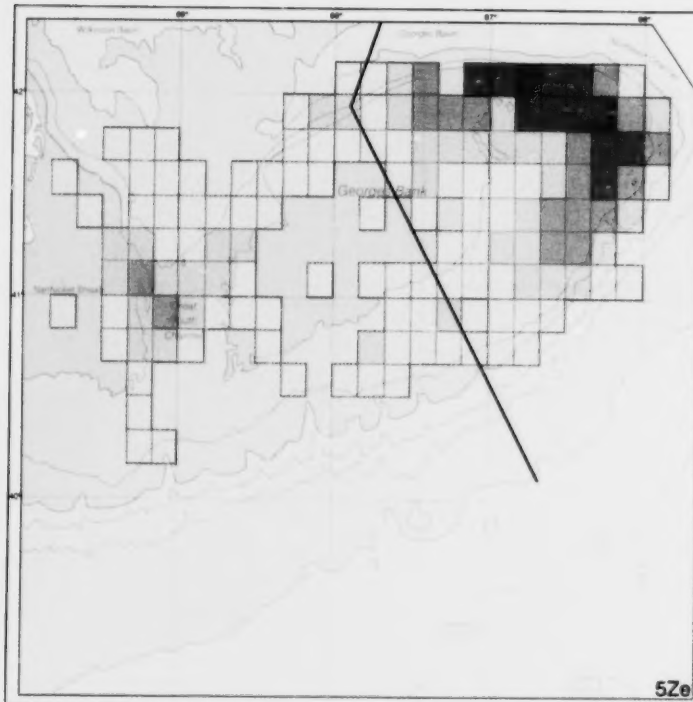
Figure 26

**Canadian and
United States
Scallop Catches in
Subdivision 52e by
10-Minute Squares,
1969-1978**

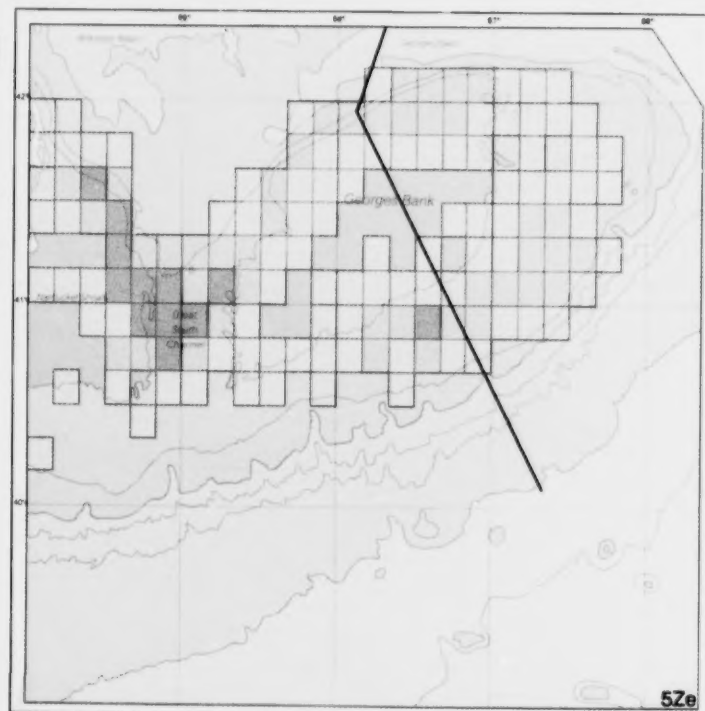


Note: The number in the upper righthand corner of the legend boxes refers to the total number of 10-minute squares that occur in each category within Subdivision 52e.

Projection - Mercator
Scale - 1:3 241 379 at 41° N



A Canadian Catch



B United States Catch

Figure 31

Official United States Representation of Canadian and United States Oil and Gas Operations in the Gulf of Maine Area, 1980

Reproduced from: National Oceanic and Atmospheric Administration, United States Department of Commerce, 1980. *Eastern United States Coastal and Ocean Zones Data Atlas*

Eastern United States Coastal and Ocean Zones

Council on Environmental Quality and Office of Coastal Zone Management, NOAA



OCS Oil and Gas

United States Operations

- ☐ Area Proposed for Future Leasing
- ☐ Blocks Scheduled to be Leased
- ☒ Blocks Currently Leased
- ☒ OCS Staging Area

- ☒ C.O.S.T. Well
- ☒ Industry Drilling Activity
- ☒ Found Oil and/or Gas
- ☒ Potential Pipeline Corridor

Canadian Operations

- ☐ Areas Formerly under Permit Required to be put up for Public Tender
- ☐ Areas under Exploration Permit
- ☒ Lease Application

Sources: Canadian Department of Energy, Mines and Resources; U.S. Bureau of Ocean Energy Management (BOEM); U.S. Geological Survey (USGS); U.S. Navy Hydrographic Office (USNO).



4-20

Figure 32

Map Submitted to
the Canadian
Government by the
Company Referred
to in the Sample
Permit in Annex 40
to the United States
Memorial

Note: Virtually all survey
operations were conducted
west of the equidistance line.

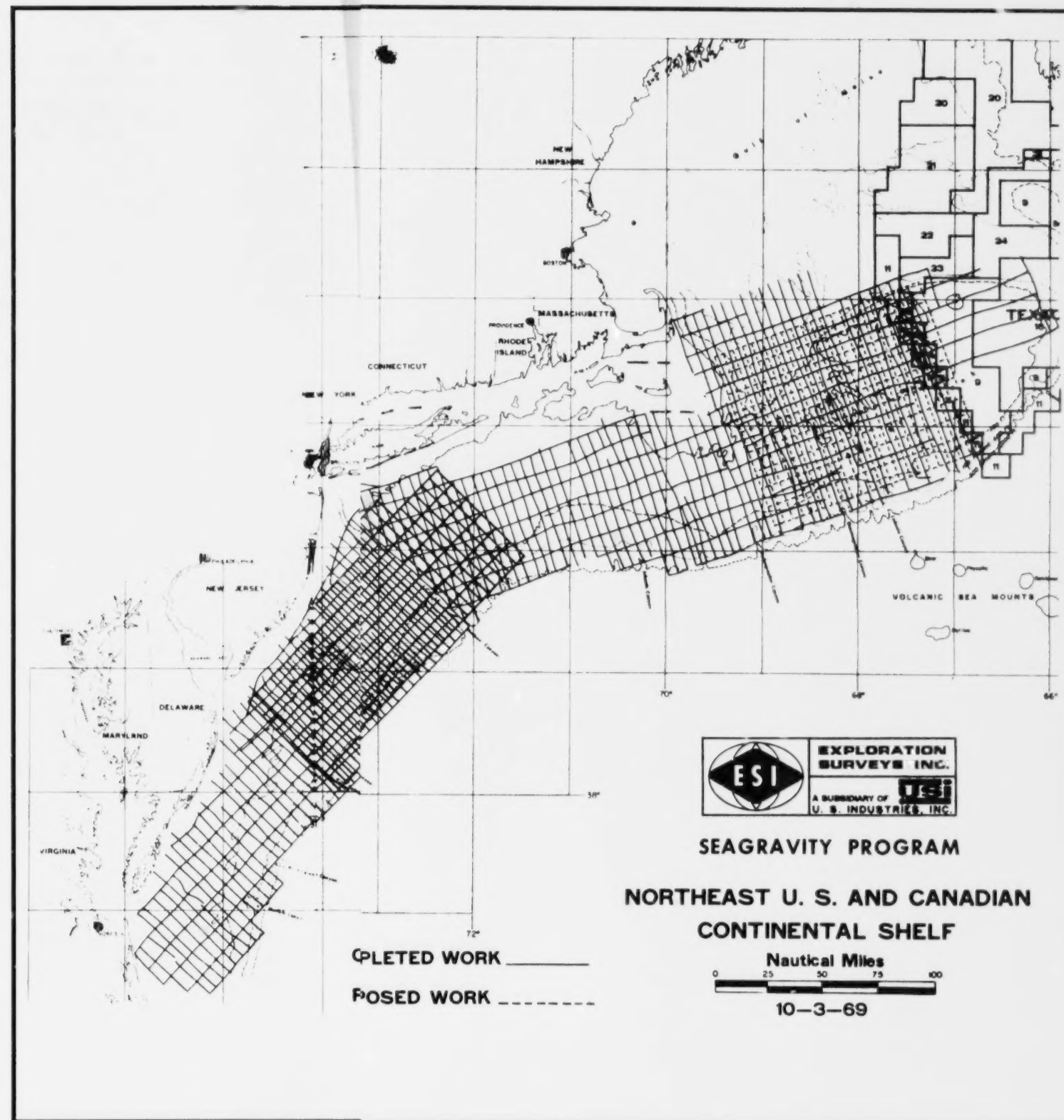


Figure 35

Cooperative
Operational Zones
and Maritime
Boundaries in the
Gulf of Mexico



A



Maritime boundaries



Outer limit of the
200-mile zones



Projection - Mercator
Scale - 1:6 000 000 at 24° N

B

ICAO Search and Rescue
Regions

Figure 41

Seaward Extensions Perpendicular to Coastal Fronts in the Manner Depicted in Figure 31 of the United States Memorial

A

The attribution of jurisdiction on the basis of a perpendicular projection of coastal fronts would exclude substantial offshore areas from coastal State jurisdiction



Seaward extensions of an island State



High seas



200-mile limit

B

The application of the perpendicular approach may place offshore areas under the jurisdiction of the more distant State



Seaward extensions of State A



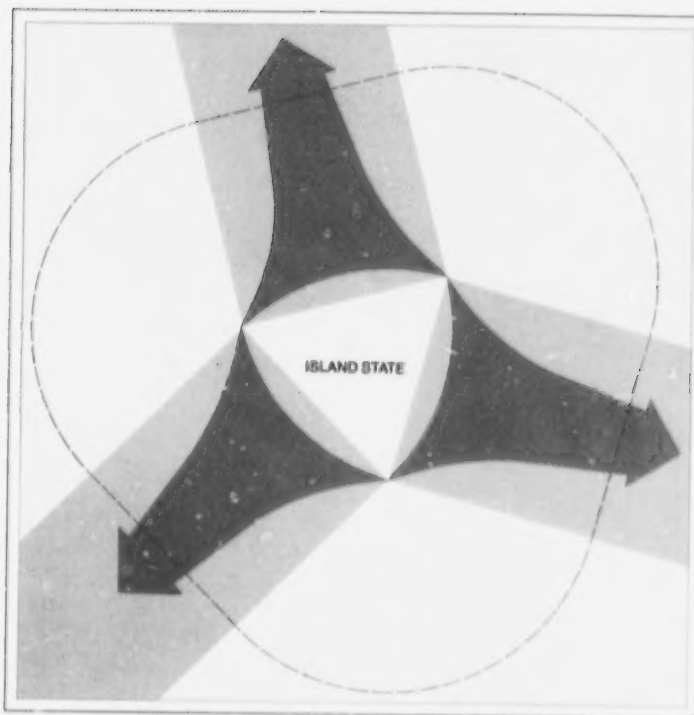
Seaward extensions of State B



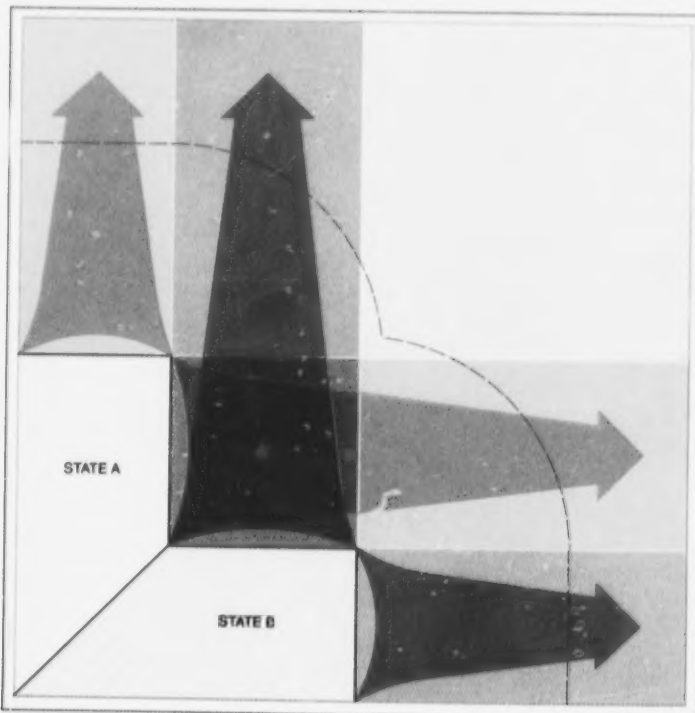
High seas



200-mile limit



A



B

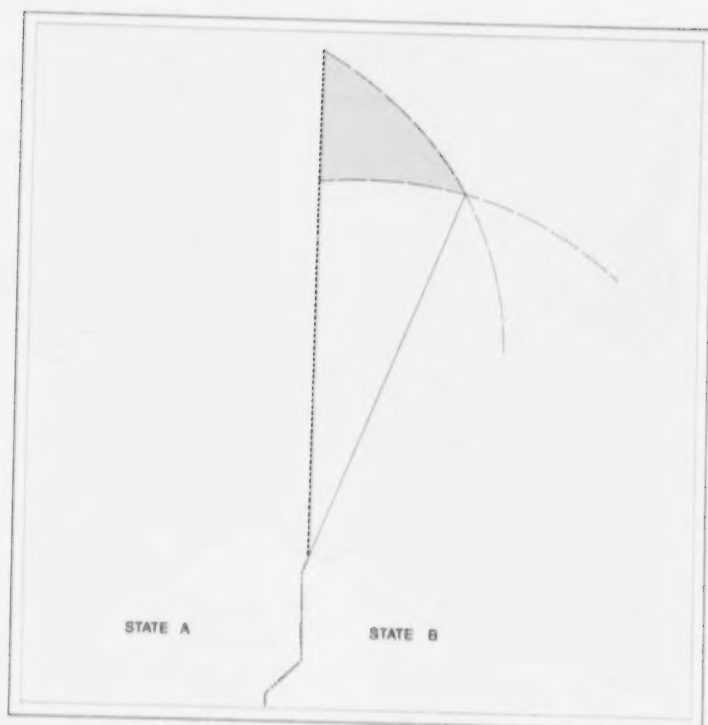


Figure 43

The "Grey Area"

Where a single maritime boundary intersects the 200-mile limits of two States at points that are not equidistant from the coast, a "grey area" is created over which neither State can exercise fisheries or exclusive economic zone jurisdiction.



200-mile limits



Equidistance line



Maritime boundary



"Grey area"

Figure 44
The International
Boundary Through
Territorial Waters
S.W. Boggs:
*International
Boundaries*. New
York: Columbia
University Press,
1940

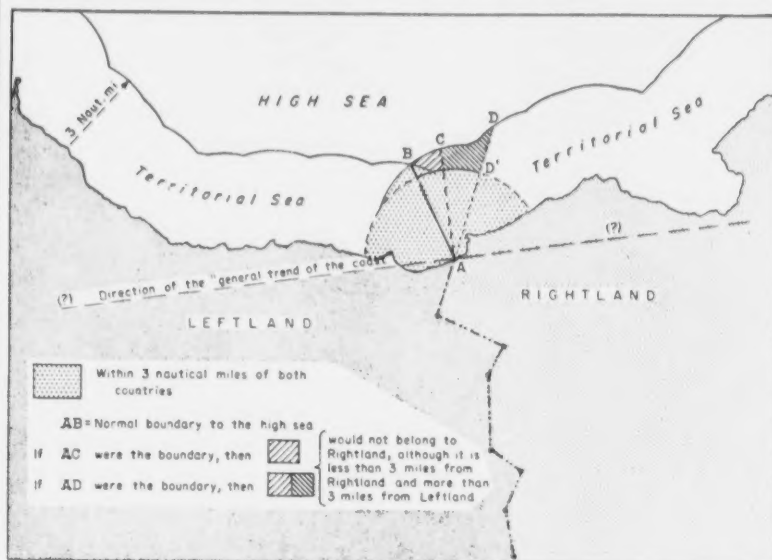


FIG. 25. THE INTERNATIONAL BOUNDARY THROUGH TERRITORIAL WATERS

The line passes through the belt of territorial waters (or "territorial sea") from the coastal terminus of the land boundary to the high sea. This is an example of the simple type, where there are no islands or highly irregular coast line. The most reasonable boundary is the line A-B, the point B being the intersection of the envelopes of arcs of three-mile radius drawn from all points on the shores of the two countries, "Leftland" and "Rightland" respectively.

Two other definitions of the international boundary are sometimes employed: (1) the extension of the last section of the land boundary (in this example, the line AD'), or (2) a line perpendicular to "the general trend of the coast" (along the line AC a distance of three miles). Both of these are objectionable, certain areas (ruled shading) being waters of controvertible jurisdiction.

The textual commentary, at pages 189-190, reads as follows:

On Figure 25 it will be seen that, if the boundary terminates at either C or D²⁰, there will be a zone of waters between AC or AD (as the case may be) and the line AB that needlessly constitutes a zone of waters of controvertible jurisdiction. These waters (shaded on the diagram) do not

belong to "Rightland" because they are to the left of the boundary; they should not belong to "Leftland" because they are more than three miles from its shores; and yet they are not part of the high sea because they are less than three miles from "Rightland".

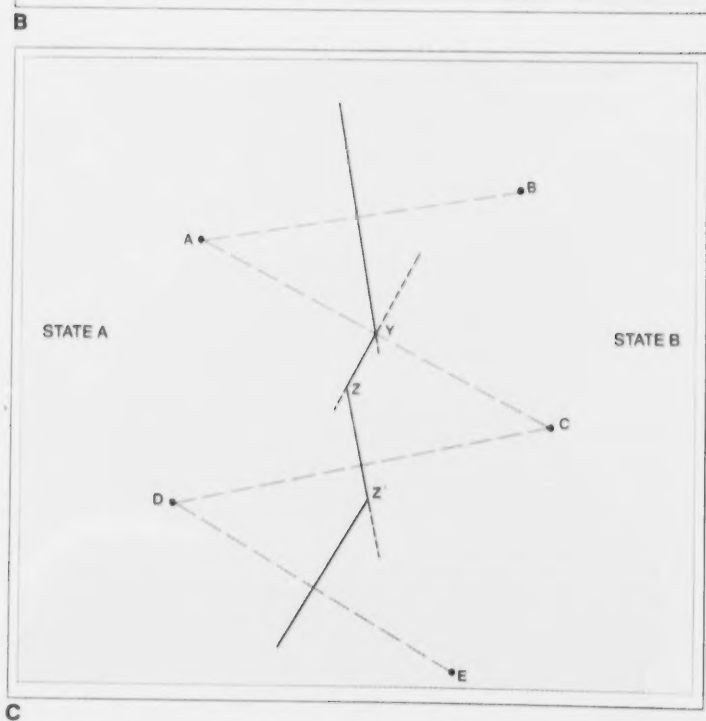
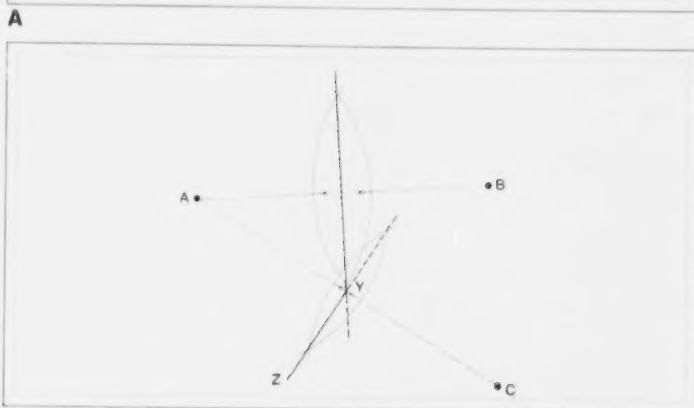
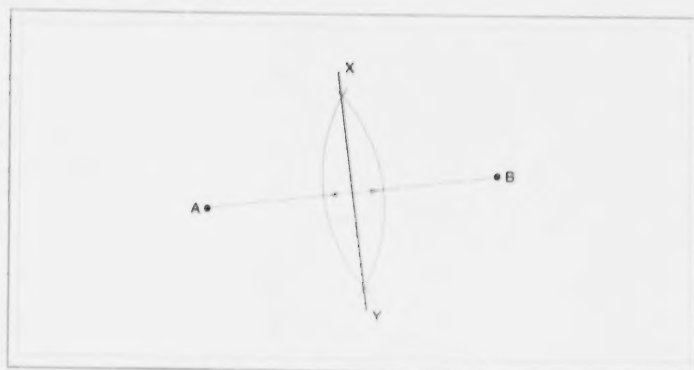
Figure 45

Construction of an Equidistance Line

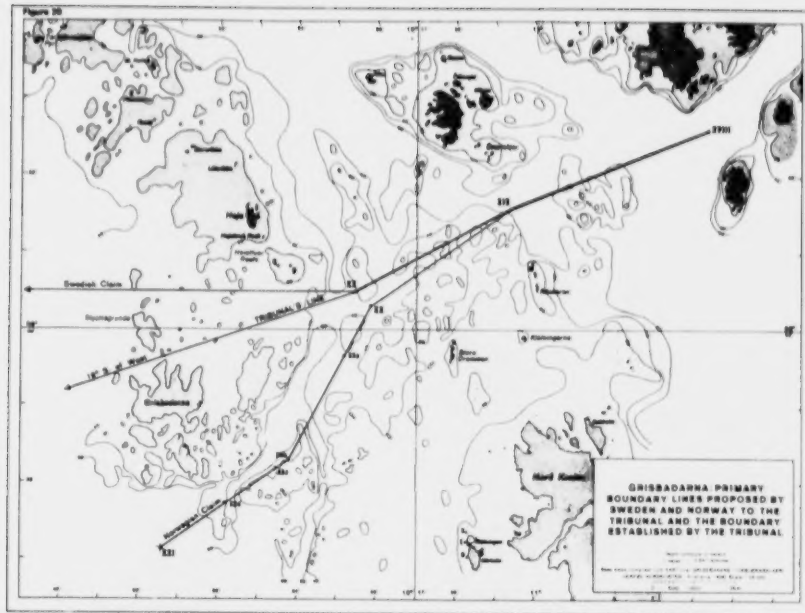
A
The Perpendicular Bisector

B
Change in Direction of the Initial Perpendicular Bisector

C
A Series of Perpendicular Bisectors



Source: R. D. Hodgson and E. J. Cooper
"The Technical Delimitation of a Modern
Equidistant Boundary" *Ocean Develop-
ment and International Law Journal*, Vol. 3,
No. 4, Crane, Russak and Co., Inc., 1976,
pp. 361-388.



A

Figure 46

Comparison of the Grisbadarna Area with the Gulf of Maine Area

A

Map of the Grisbadarna area
shown in Figure 20, United
States Memorial, at a scale of
1 : 65 000; reproduced here at
a scale of 1 : 171 052

B

The United States
Grisbadarna map inserted in a
map showing the wider
geographical setting of the
area; scale 1 : 10 000 000

C

The United States
Grisbadarna map inserted in a
map of the Gulf of Maine area;
scale 1 : 10 000 000



B



C



Figure 50
The Canadian Line
Reflects the General
Configuration of the
Coasts

This Figure compares the Canadian line with a hypothetical equidistance line drawn from straight lines representing the general direction of the coasts.

A Construction of the Canadian line



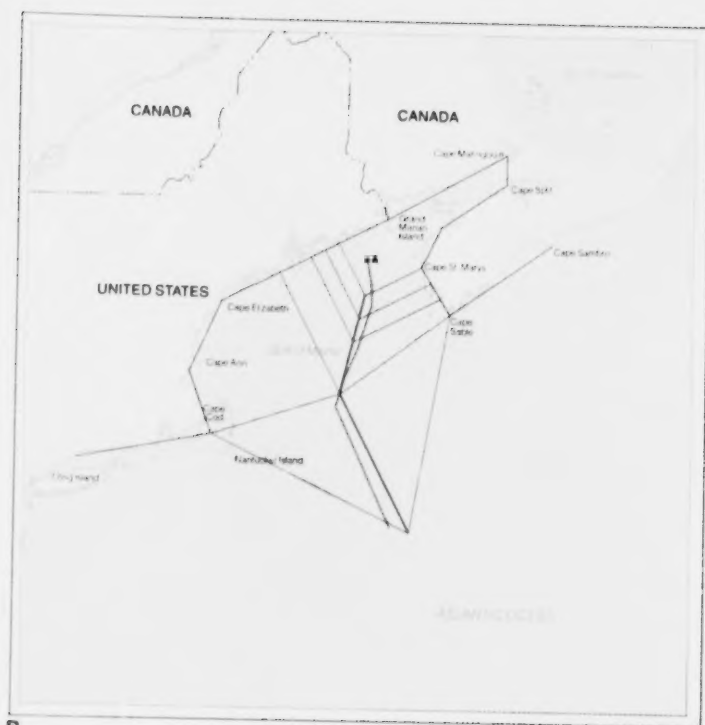
Base points used to construct the Canadian line



Equidistance construction lines



Canadian line



B

Projection - Mercator
Scale - 1 : 10 000 000 at 41° N

B
Construction of the hypothetical equidistance line



Straight lines representing the general direction of the coasts



Equidistance construction lines



Equidistance line drawn from straight lines representing the general direction of the coasts



Canadian line

Figure 51

Proportionality Test A



Lines utilized in measuring the length of the coasts according to their general direction



Perpendicular to the mean general direction (067°) of the Atlantic-facing coasts

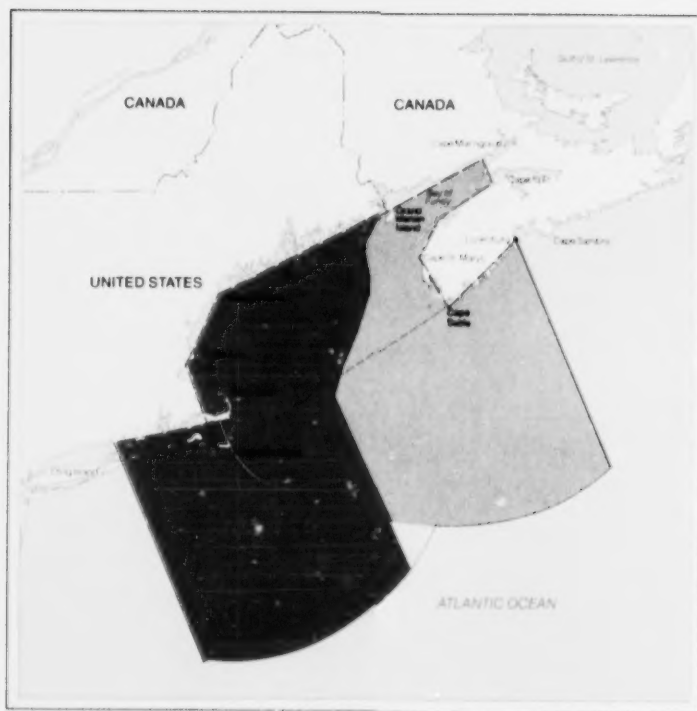


Seaward limits of the 200-mile zones



Hypothetical Gulf of Maine closing line

Projection - Mercator
Scale - 1:10 000 000 at 41° N



A Sea areas divided by the Canadian line

	1 The inner area	2 The outer area	3 The Gulf of Maine area (as a whole)
Coastline lengths:			
Canada	258 NM	83 NM	341 NM
United States	286 NM	83 NM	369 NM
COASTLINE RATIOS			
Canada : United States	47 : 53	50 : 50	48 : 52
Sea areas divided by the Canadian line:			
Total sea area	28 506 SNM	81 772 SNM	110 278 SNM
Canada	8 704 SNM	37 917 SNM	46 621 SNM
United States	19 802 SNM	43 855 SNM	63 657 SNM
AREAL RATIOS			
Canada : United States	30 : 70	46 : 54	42 : 58
Sea areas divided by the United States line:			
Total sea area	28 506 SNM	82 543 SNM	111 049 SNM
Canada	6 586 SNM	14 846 SNM	21 432 SNM
United States	21 920 SNM	67 697 SNM	89 617 SNM
AREAL RATIOS			
Canada : United States	23 : 77	18 : 82	19 : 81

Note: SNM represents Square Nautical Miles

Figure 52

Proportionality Test B



Lines utilized in measuring the length of the coasts according to their general direction



Meridians and parallels delineating sea areas in which the proportionality test is applied



Triangle defined in Article II of the Special Agreement

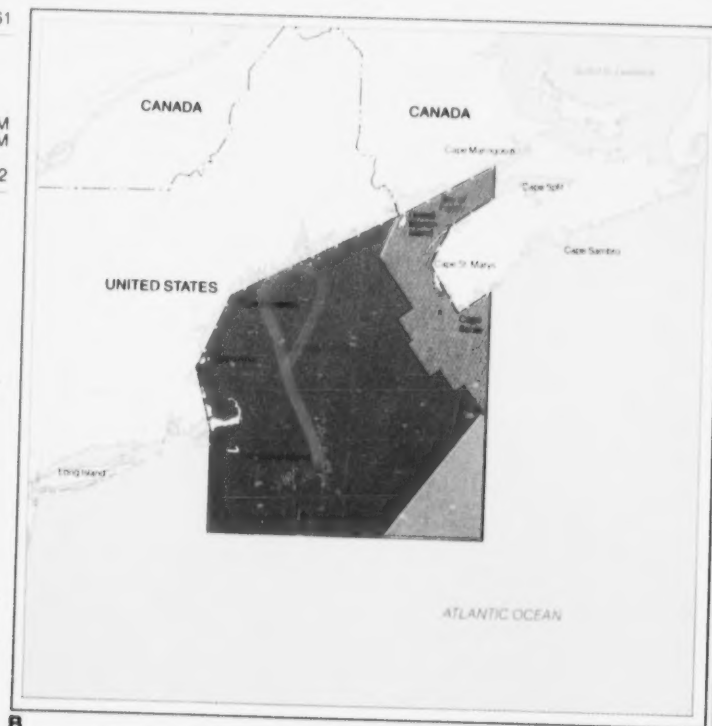
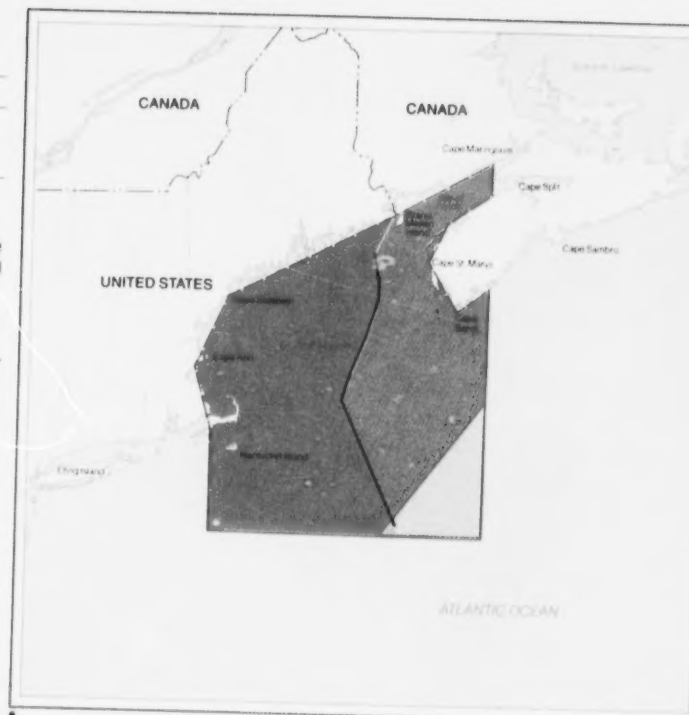
Coastline lengths:
 Canada 287 NM
 United States 288 NM
COASTLINE RATIO
 Canada : United States 50 : 50
 Total sea area 58 974 SNM

A
 Sea Areas Divided by the Canadian Line
 Canada 23 067 SNM
 United States 35 907 SNM
AREAL RATIO
 Canada : United States 39 : 61

B
 Sea Areas Divided by the United States Line
 Canada 10 368 SNM
 United States 48 606 SNM
AREAL RATIO
 Canada : United States 18 : 82

Note: The test in this Figure is applied to the area bounded to the southeast by the hypotenuse of the triangle. See Part IV, Chapter III, footnote 12 of this Counter-Memorial for the ratios produced if the triangle is included within the test area.

Projection - Mercator
 Scale - 1 10 000 000 at 41° N



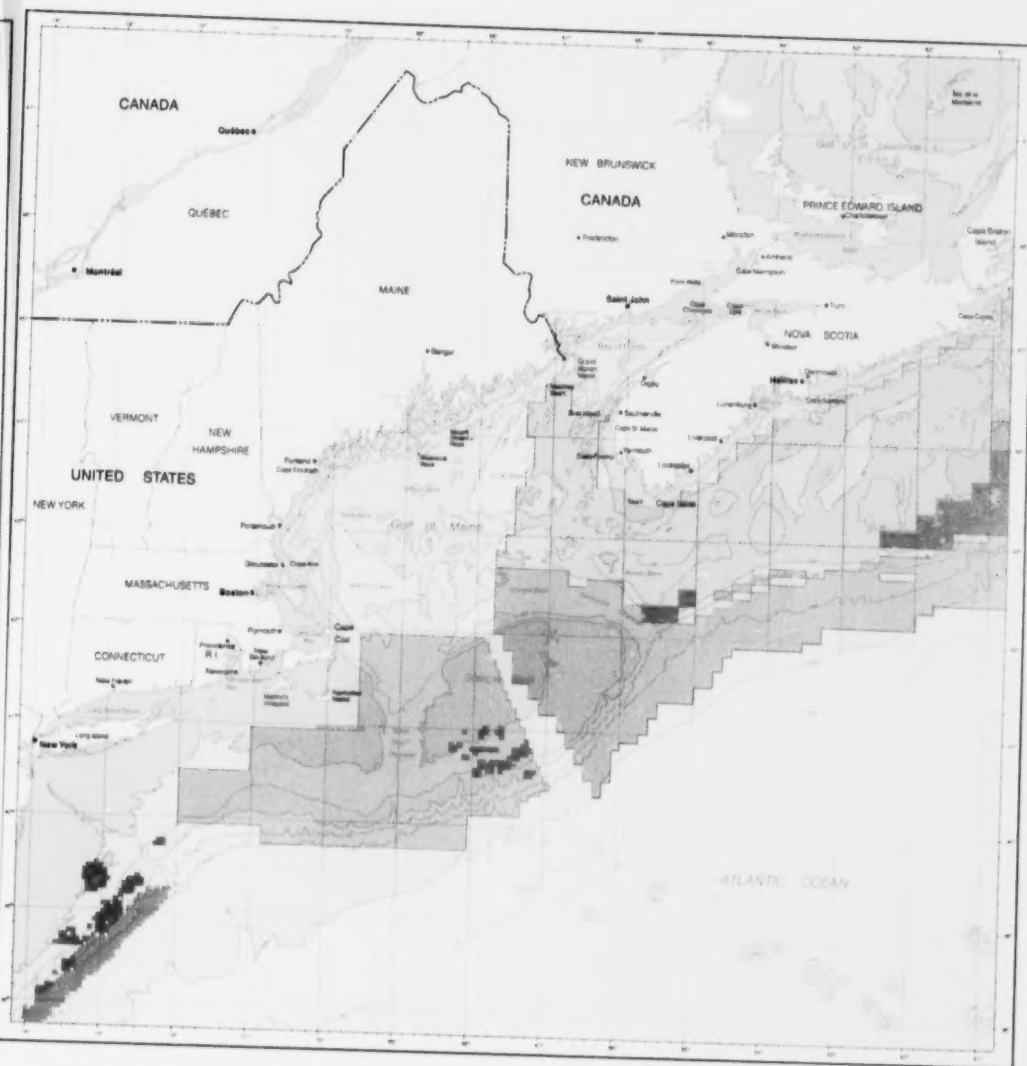


Figure 53

Offshore Oil and Gas Exploratory Permits and Leases in the Gulf of Maine Area

- Canadian lease applications
- Canadian permits
- Areas formerly under permit (Canada) surrendered to the Canadian Government to be put up for public tender
- United States blocks currently leased
- United States areas scheduled to be leased
- United States area proposed for future leasing

Source: National Oceanic and Atmospheric Administration; United States Department of Commerce, 1980. *Eastern United States Coastal and Ocean Zones Data Atlas*.

Depth in Meters
Projection: Mercator
Scale: 1 : 4,700,000 at 41° N

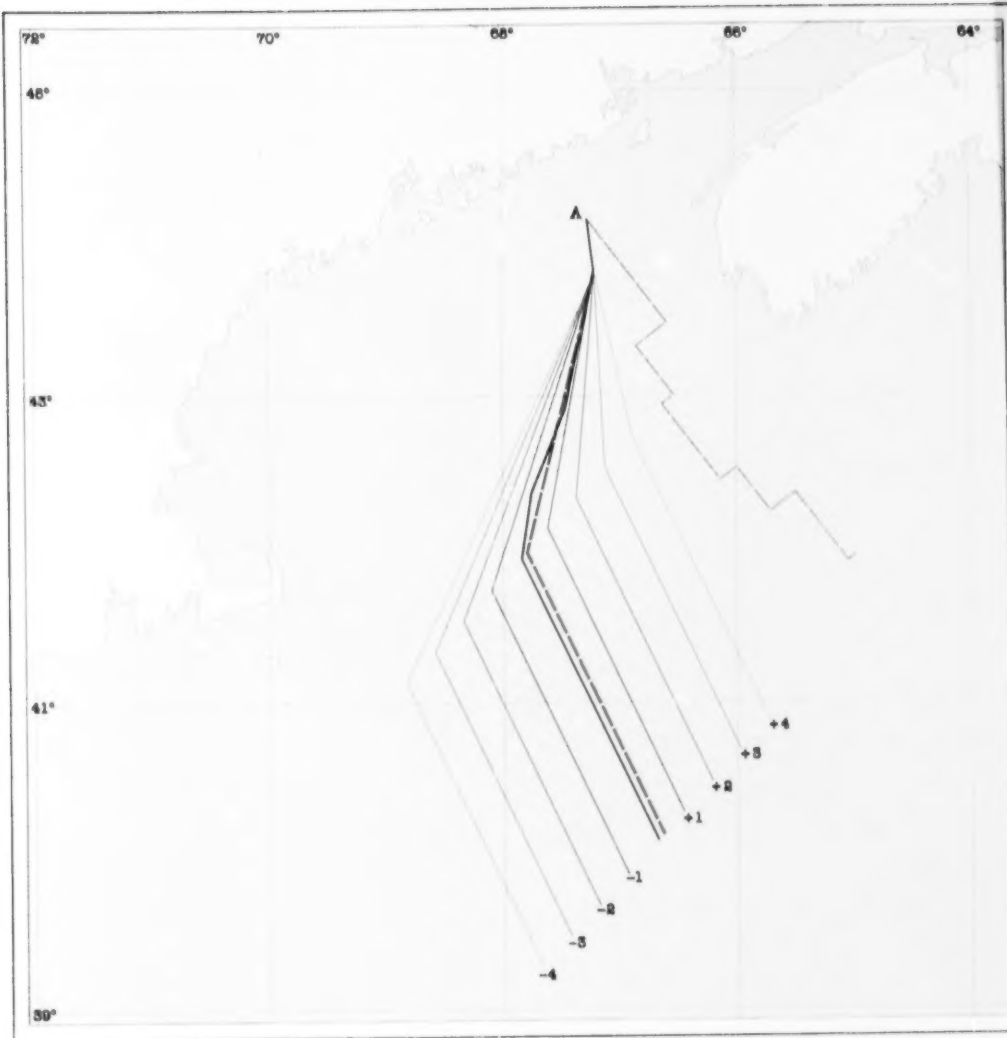


Figure 54

Division of Georges Bank Indicated by Computer Analysis of the Resource Allocations Established Under the 1979 Agreement on East Coast Fishery Resources

Canadian line
Aggregate allocations line
United States line
Trial analysis lines

Projection: Mercator
Scale: 1:2,000,000 at 41°N



Figure 55
The United States
Boundary Proposal
Denies the Exis-
tence of Nova
Scotia

Copyright © 1998
ProQuest, Inc.
Scale: 1:1,000,000

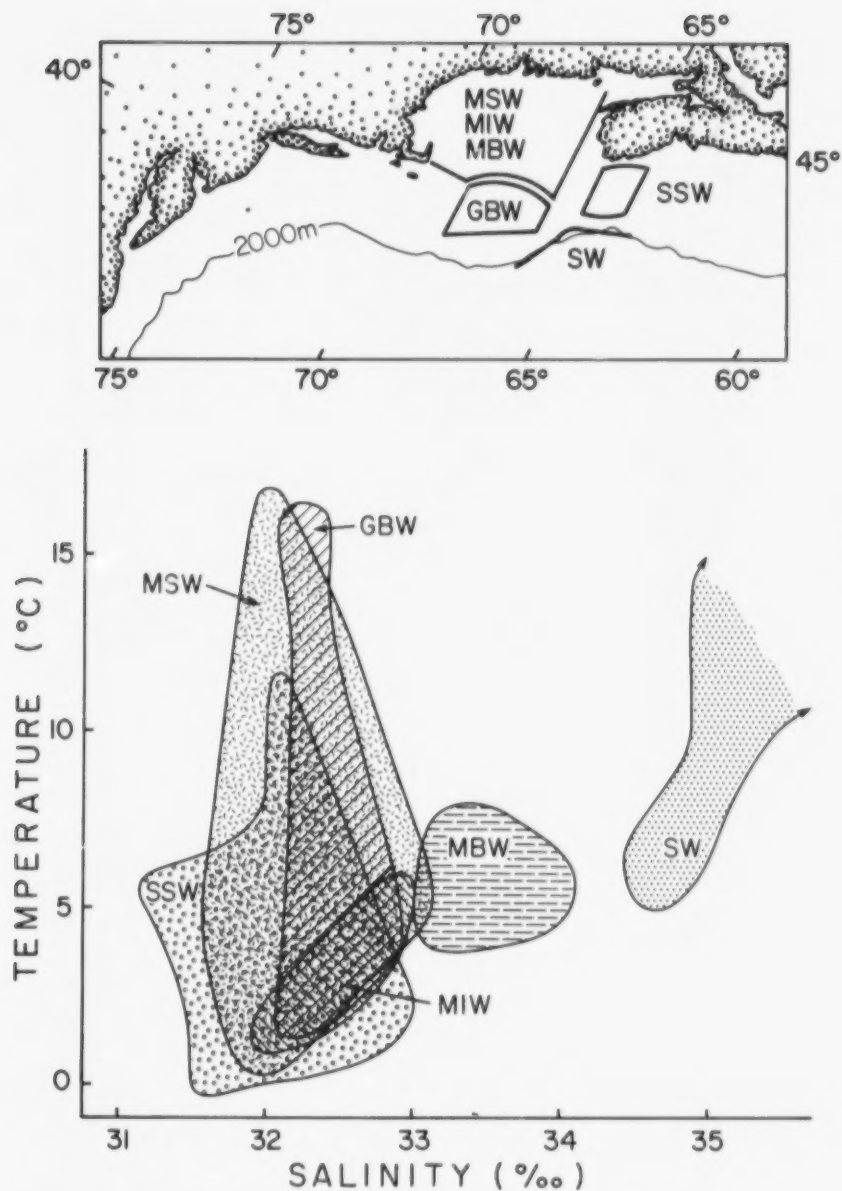


Figure 13: Temperature-salinity relationship for water masses in the Gulf of Maine area: SSW: Scotian Shelf water; SW: slope water; GBW: Georges Bank water; MSW: Maine surface water; MIW: Maine intermediate water; and MBW: marine bottom water (which is confined to the deeper basins of the Gulf of Maine).

Source: Redrawn from T. S. Hopkins and N. Garfield: "Gulf of Maine Intermediate Water." *Journal of Marine Research*, Vol. 37, No. 1, 1979, pp. 103-139.

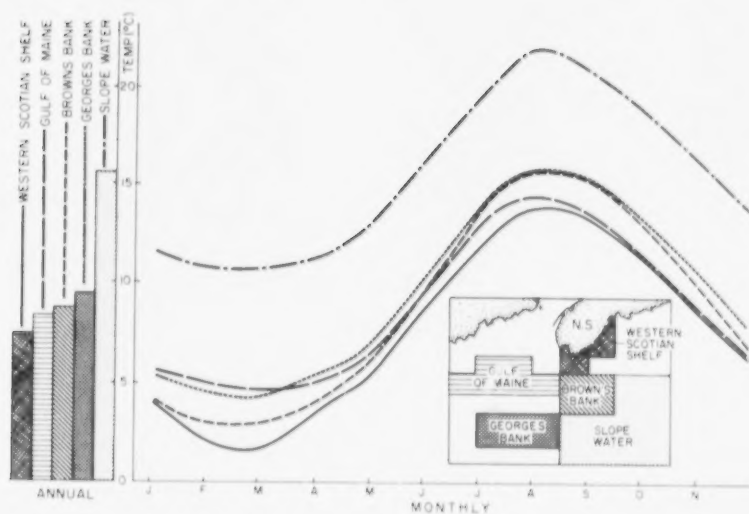
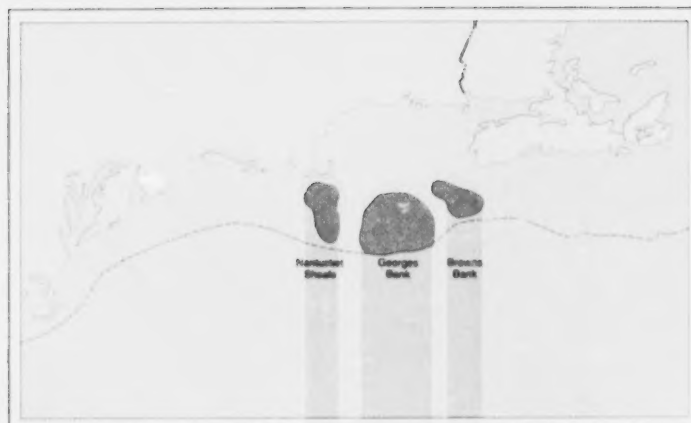


Figure 14: Sea surface temperature patterns for selected waters of the southwestern Scotian Shelf, Gulf of Maine, Georges Bank and slope.

Source: Data from World Climate Center, Asheville, North Carolina.

Figure 25

Distribution of Macrobenthic Fauna Found on Gravel Bottom



Polymastia	_____
Cliona	_____
Myxilla	_____
Gerrusia	_____
Modiolus modiolus	_____
Piscespecten magellanicus	_____
Arenaria	_____
Musculus niger	_____
Doris	_____
Deironotus	_____
Hyas coarctatus	_____
Hyas araneus	_____
Balanus crenatus	_____
Balanus balanoides	_____
Solaster	_____
Ophiopoda	_____
Ophiocantha	_____
Boletia	_____
Ascidia callosa	_____
Amaruocum	_____

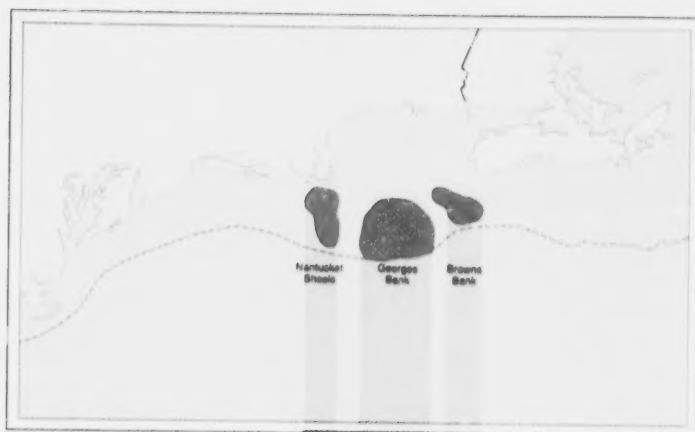
The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species commonly occurring on Georges Bank are listed by R. L. Wigley, overall range of distribution provided by K. L. Gosner.

Sources: R. L. Wigley, "Benthic Invertebrates of the New England Fishing Banks," *Underwater Naturalist*, Vol. 5, No. 1, 1968, pp. 1-13; K. L. Gosner, *Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy*, New York, Wiley-Interscience, Inc., 1971.

Projection - Lambert Conformal
Scale - 1:16 000 000

Figure 26:

Distribution of Macrobenthic Fauna Found on Sand Bottom



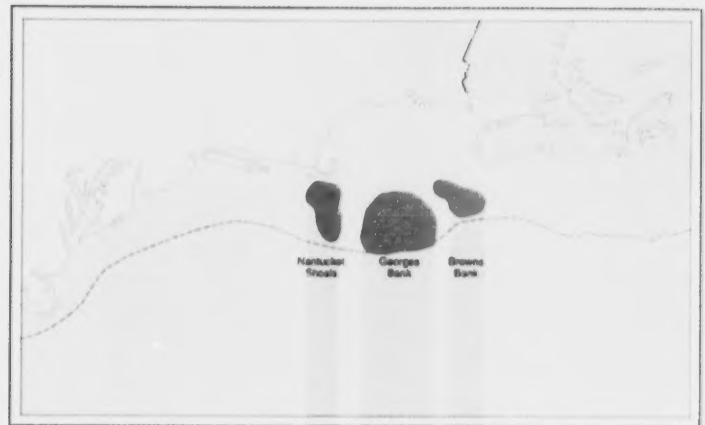
<i>Opheia denticolata</i>	_____
<i>Goniadella</i> sp.	_____
<i>Clymenella</i> sp.	_____
<i>Metastigma</i> sp.	_____
<i>Lunata heros</i>	_____
<i>Nereis tritatus</i>	_____
<i>Siphois acrobasis</i>	_____
<i>Asteria castanea</i>	_____
<i>Chiron septemspinosa</i>	_____
<i>Chironia arctica</i>	_____
<i>Hydrobia (tumacian)</i>	_____
<i>Rapana acadia</i>	_____
<i>Echinorhynchus pama</i>	_____
<i>Megala arenata</i>	_____

The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species commonly occurring on Georges Bank are listed by R. L. Wigley; overall range of distribution provided by K. L. Gosner.

Sources: R. L. Wigley, "Benthic Invertebrates of the New England Fishing Banks," *Underwater Naturalist*, Vol. 5, No. 1, 1968, pp. 1-13; K. L. Gosner, *Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy*, New York, Wiley-Interscience, Inc., 1971.

Figure 27

Distribution of Macrobenthic Fauna Found on Silty Sand Bottom



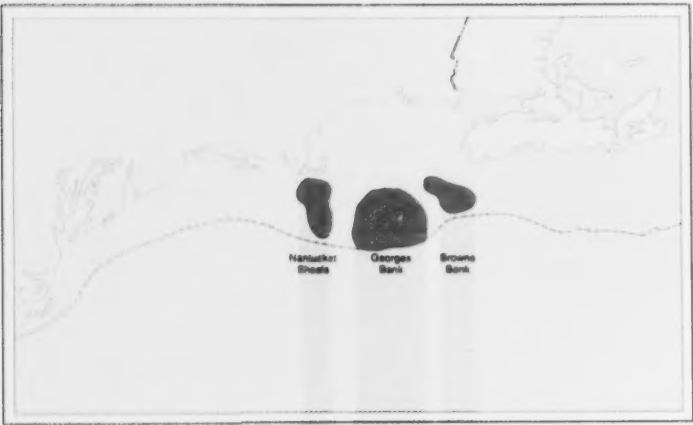
<i>Coranthus borealis</i>	_____
<i>Scalidregma</i>	_____
<i>Colus pygmaeus</i>	_____
<i>Venericardia bairdii</i>	_____
<i>Nucula</i>	_____
<i>Cremata hiba</i>	_____
<i>Arctica islandica</i>	_____
<i>Ampelisca vadorum</i>	_____
<i>Ampelisca compressa</i>	_____
<i>Dicathopandalia</i>	_____
<i>Dasyatis</i>	_____
<i>Eostee</i>	_____

The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species commonly occurring on Georges Bank are listed by R. L. Wigley, overall range of distribution provided by K. L. Gosner.

Sources: R. L. Wigley, "Benthic Invertebrates of the New England Fishing Banks," *Underwater Naturalist*, Vol. 5, No. 1, 1968, pp. 1-13; K. L. Gosner, *Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy*, New York, Wiley-Interscience, Inc., 1971.

Projection - Lambert Conformal
Scale - 1:16,000,000

Figure 28
Distribution of
Macrobenthic
Fauna Found on
Mud Bottom



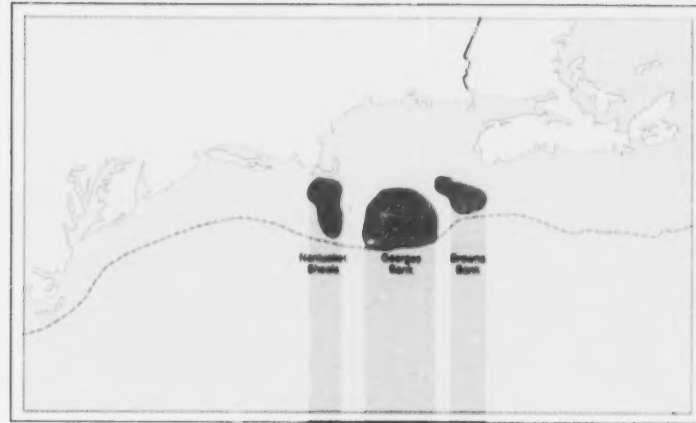
<i>Sternaspis scutata</i>	_____
<i>Amphiprion coriata</i>	_____
<i>Amphiprion imata</i>	_____
<i>Onuphea</i> sp.	_____
<i>Isopoda</i> sp.	_____
<i>Medusaria (Musculus) decussatus</i>	_____
<i>Haplosporidium</i>	_____
<i>Caprellia longipennis</i>	_____
<i>Pandalus borealis</i>	_____
<i>Pandalus montagui</i>	_____
<i>Pandalus propinquus</i>	_____
<i>Broastier fragilis</i>	_____
<i>Ophiura sarsi</i>	_____
<i>Ophiura robusta</i>	_____
<i>Amphura otteri</i>	_____
<i>Ctenodiscus crispatus</i>	_____
<i>Polycarpa fibrosa</i>	_____

The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species commonly occurring on Georges Bank are listed by R. L. Wigley, overall range of distribution provided by K. L. Gosner

Sources: R. L. Wigley: "Benthic Invertebrates of the New England Fishing Banks," *Underwater Naturalist*, Vol. 5, No. 1, 1968, pp. 1-13, K. L. Gosner: *Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy*, New York, Wiley-Interscience, Inc., 1971

Figure 29:

**Distribution of
Macrobenthic
Species Found on
Silty, Mud or
Unspecified
Substrates of the
Scotian Shelf**



Hydrallmania falcata	_____
Aphrodite hastata	_____
Colus obesus	_____
Buccinum undatum	_____
Buccinum cyaneum	_____
Buccinum totteni	_____
Buccinum tenue	_____
Colus ventricosus	_____
Colus stimpsoni	_____
Colus pubescens	_____
Aporrhais occidentalis	_____
Amatropsis islandica	_____
Admete couthouyi	_____
Arctica islandica	_____
Cyrtodaria sinqua	_____
Serripes groenlandicus	_____
Clinocardium ciliatum	_____
Mya truncata	_____
Yoldia sp.	_____
Panomya arctica	_____
Hippasteria phrygiana	_____
Ctenodiscus crispatus	_____
Stereoderma unisemita	_____
Thyone scabra	_____
Halocynthia pyramidalis	_____

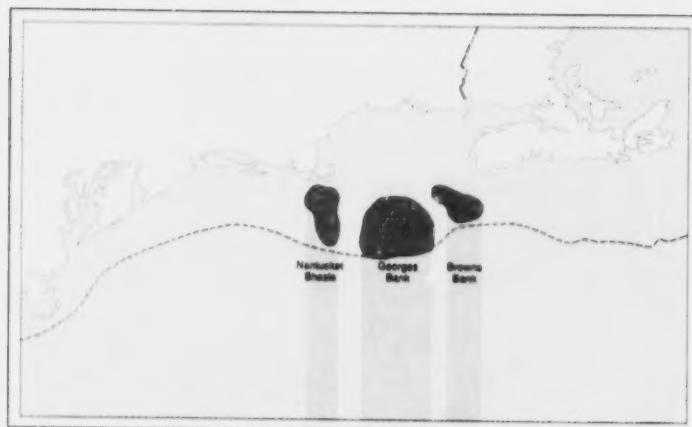
The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species found on the Scotian Shelf are provided by T. W. Rowell; southern extent of range given by K. L. Gosner.

Sources: T. W. Rowell, Canadian Department of Fisheries and Oceans, Halifax, unpublished survey data; K. L. Gosner, *Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy*, New York, Wiley-Interscience, Inc., '971.

Projection - Lambert Conformal
Scale - 1:16 000 000

Figure 30:

Distribution of Macrobenthic Species Found on Sand or Gravel and Rock Substrates of the Scotian Shelf



<i>Callinectes</i>	
<i>Polymesoda</i>	
<i>Leptochinus</i>	
<i>Natica</i>	
<i>Littorina</i>	
<i>Nassarius</i>	
<i>Rissopecten</i>	
<i>Chamaea</i>	
<i>Modiolus</i>	
<i>Mytilus</i>	
<i>Spisula</i>	
<i>Spisula</i>	
<i>Gilpinia</i>	
<i>Pitar</i>	
<i>Mesodesma</i>	
<i>Mulinus</i>	
<i>Astarte</i>	
<i>Venerupis</i>	
<i>Pagurus</i>	
<i>Hyas</i>	
<i>Hyas</i>	
<i>Cancer</i>	
<i>Cancer</i>	
<i>Ovalipes</i>	
<i>Homarus</i>	
<i>Asterias</i>	
<i>Asterias</i>	
<i>Henricia</i>	
<i>Solaster</i>	
<i>Solaster</i>	
<i>Gorgonocephalus</i>	
<i>Ophiophrissus</i>	
<i>Strongylocentrotus</i>	
<i>Brisaster</i>	
<i>Echinarachnius</i>	
<i>Cucumaria</i>	
<i>Psolus</i>	
<i>Psolus</i>	
<i>Bolitaenia</i>	

Projection - Lambert Conformal
Scale - 1:16 000 000

The range of the species is illustrated by the horizontal line. Blue line indicates species of northern origin. Red line indicates species of southern origin. Species found on the Scotian Shelf are provided by T. W. Rowell, southern extent of range given by K. L. Gosner.

Sources: T. W. Rowell: Canadian Department of Fisheries and Oceans, Halifax, unpublished survey data; K. L. Gosner: *Guide to Identification of Marine and Estuarine Invertebrates*, Cape Hatteras to the Bay of Fundy, New York, Wiley-Interscience, Inc., 1971.

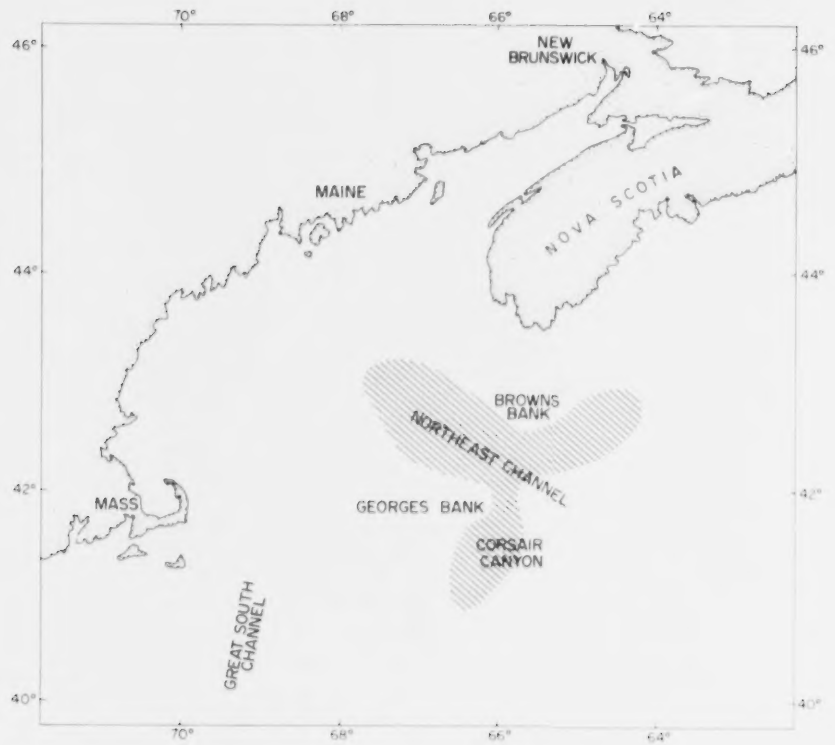


Figure 40: Canadian offshore lobster fishing areas in the Gulf of Maine area.

Source: Redrawn from A. B. Stasko and R. W. Pye (see footnote 21).

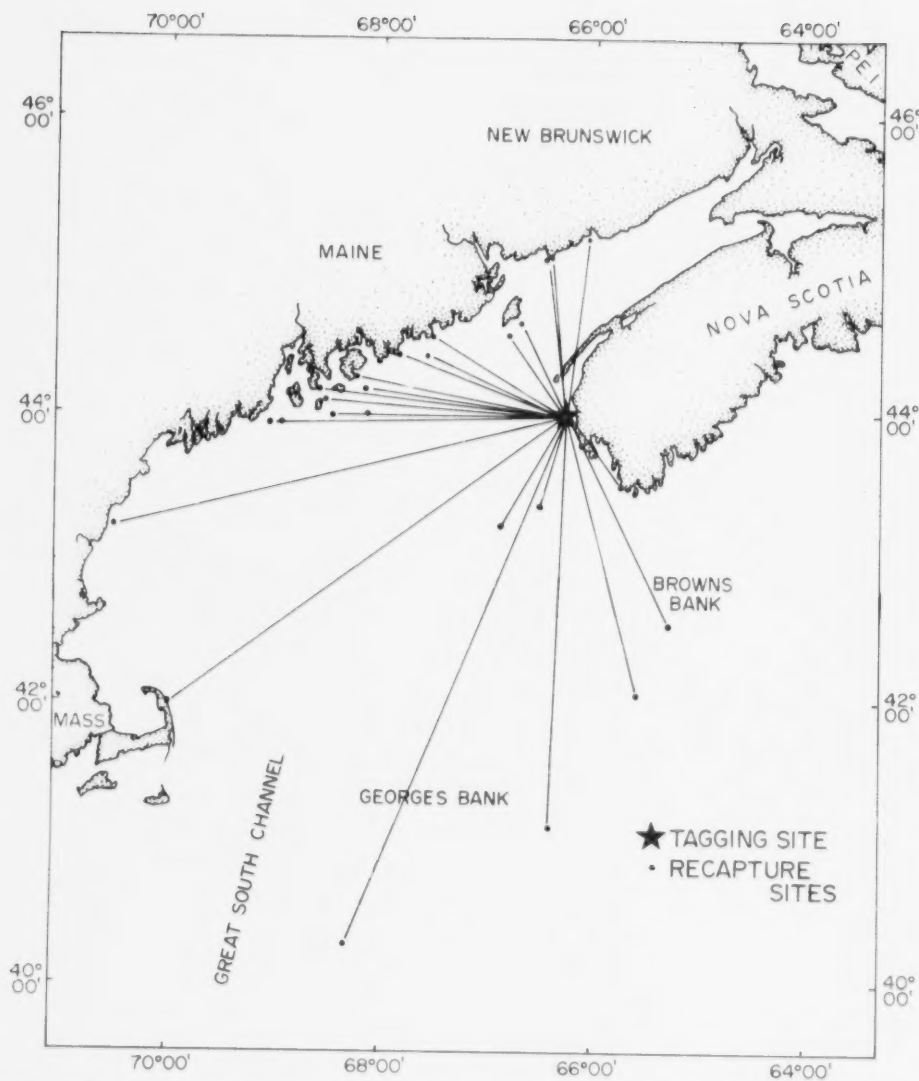


Figure 41: Lobster tag returns, showing extensive migrations from Port Maitland, Nova Scotia throughout the Gulf of Maine area.

Source: Redrawn from A. Campbell (see footnote 22).

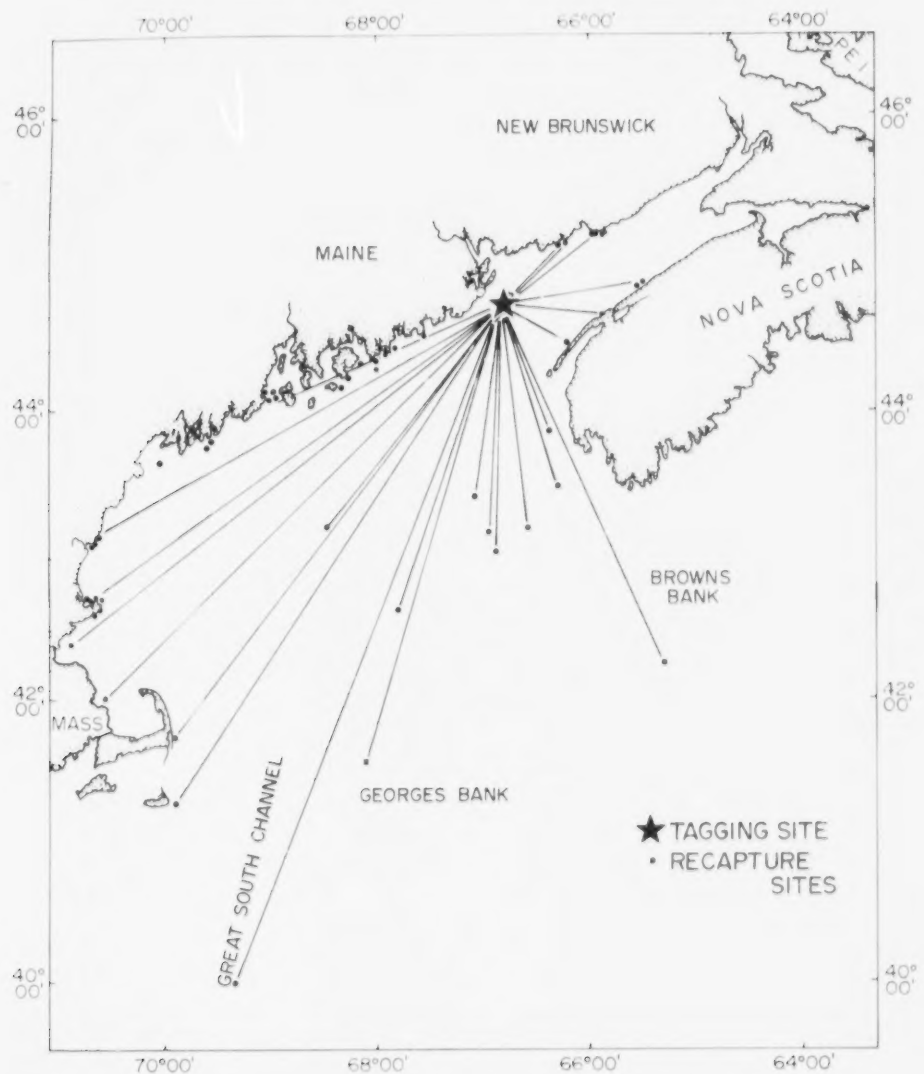


Figure 42: Lobster tag returns, showing extensive migrations from Grand Manan, New Brunswick throughout the Gulf of Maine area.

Source: Redrawn from unpublished Canadian Department of Fisheries and Oceans data (see footnote 22).

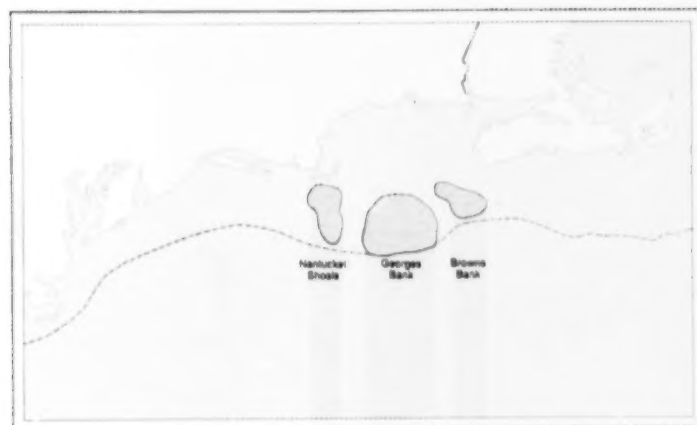


Figure 53: Herring tagging studies, showing extensive movement from the Bay of Fundy throughout the Gulf of Maine area and beyond

Source: Redrawn from W. T. Stobo (see footnote 31).

Figure 60:

Ranges of Stocks of 28 Commercially Important Species



Atlantic herring: Summer feeding Spawning areas - outer Gulf Spawning areas - inner Gulf Overwintering Juvenile	-----
Sea scallops: Great South Channel NE Georges Bank SW Nova Scotia S Georges Bank	-----
Silver hake: N Georges Bank / Inner Gulf S Georges Bank / Mid Atlantic Bight / Scotian Shelf	-----
Mackerel: Summer Winter	-----
Haddock: SW Georges Bank, NE Georges Bank, Scotian Shelf Inner Gulf	-----
Cod: SW Georges Bank, NE Georges Bank, Scotian Shelf Inner Gulf	-----
Yellowtail flounder	-----
Red hake*: N Georges Bank / Inner Gulf, Scotian Shelf S Georges Bank, Mid Atlantic Bight	-----
Winter flounder*	-----
Pollock*	-----
Argentine	-----
Redfish*: Inner Gulf, Scotian Shelf	-----
Longfin squid	-----
Shortfin squid	-----
American plaice*: Inner Gulf, Scotian Shelf	-----
Lobster	-----
Witch flounder*: Inner Gulf, Scotian Shelf	-----
Alewife - marine phase**	-----
Swordfish	-----
Butterfish	-----
Angler*	-----
Cusk*	-----
White hake*: Inner Gulf	-----
Saury	-----
American shad - marine phase**	-----
Bluefin tuna	-----
Atlantic salmon - marine phase**	-----
Spiny dogfish*	-----

Projection - Lambert Conformal
Scale - 1:16 000 000

*Stock structure uncertain

**Discrete stocks spawning in the different
rivers are mixed together when they migrate to

the oceans during the marine phase of their
life history.

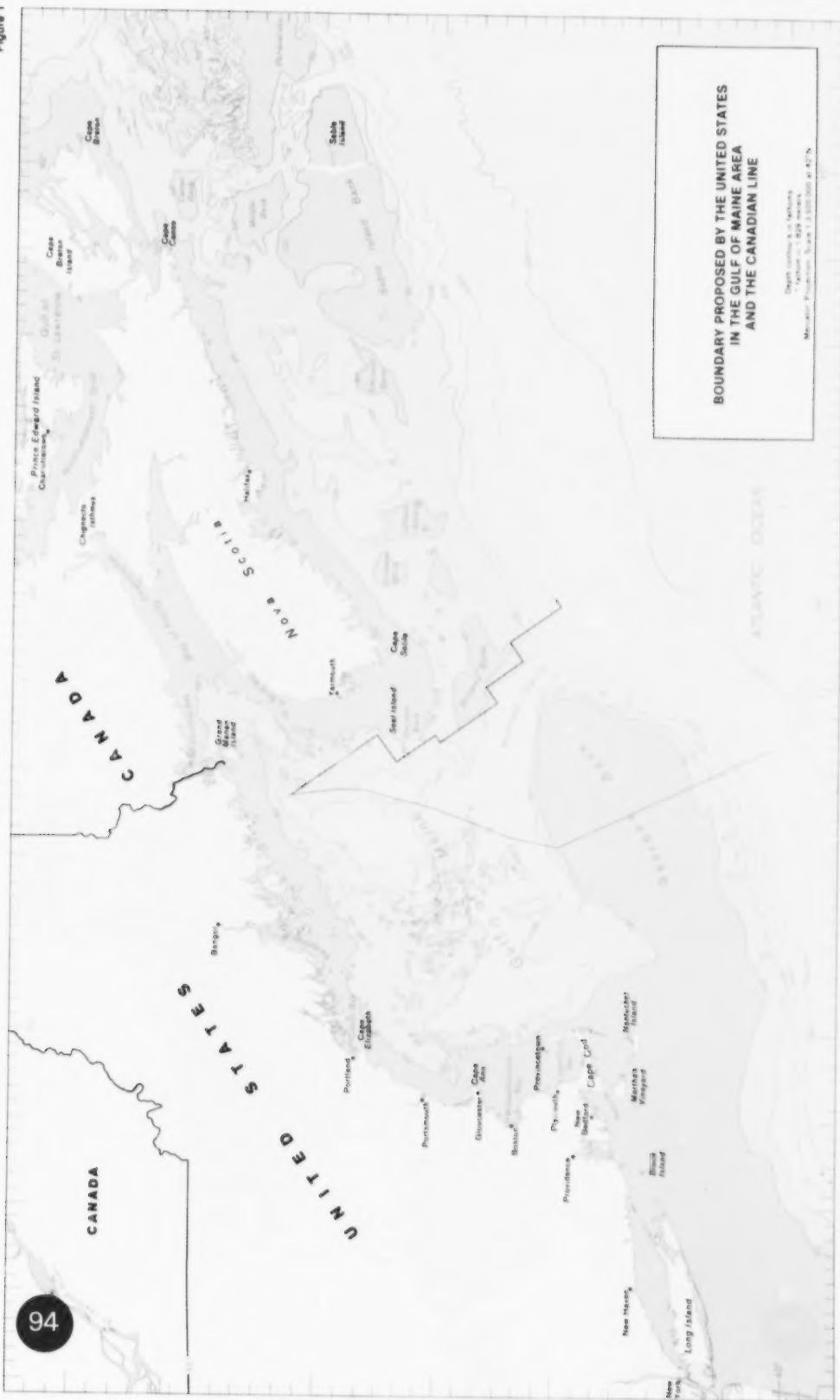


Figure 3

EAST COAST OF NORTH AMERICA

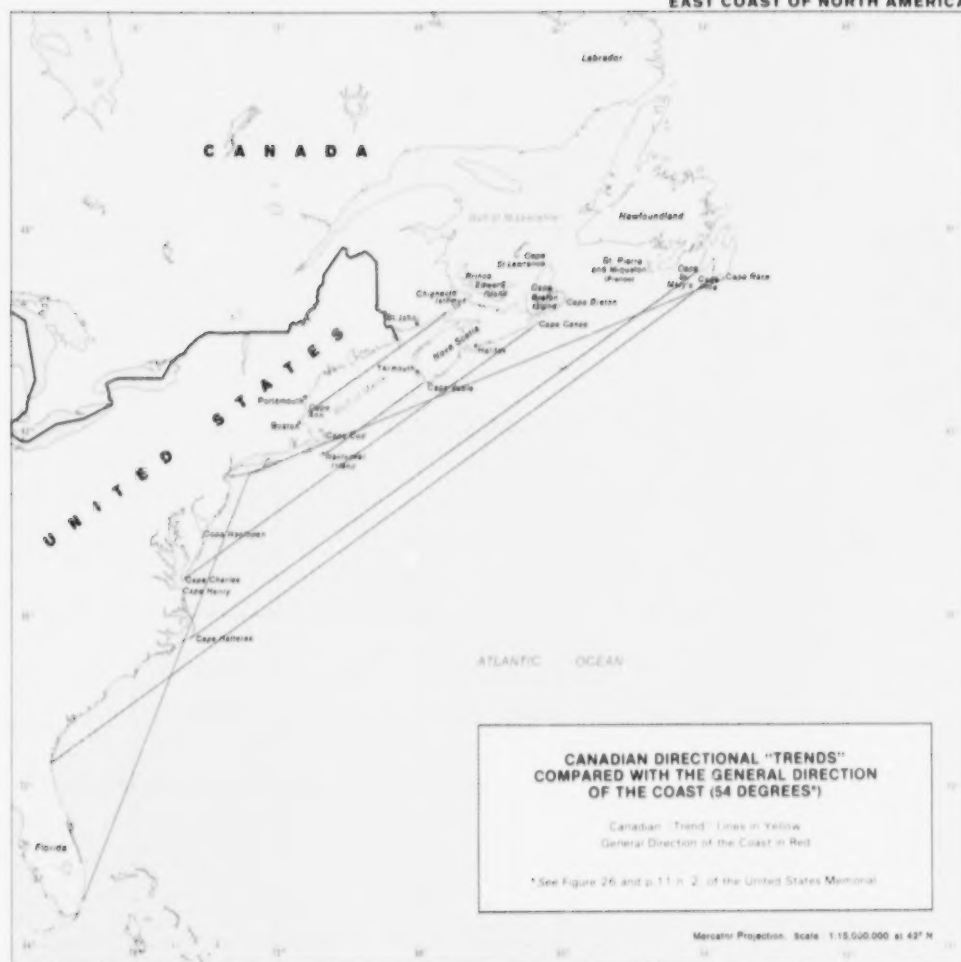
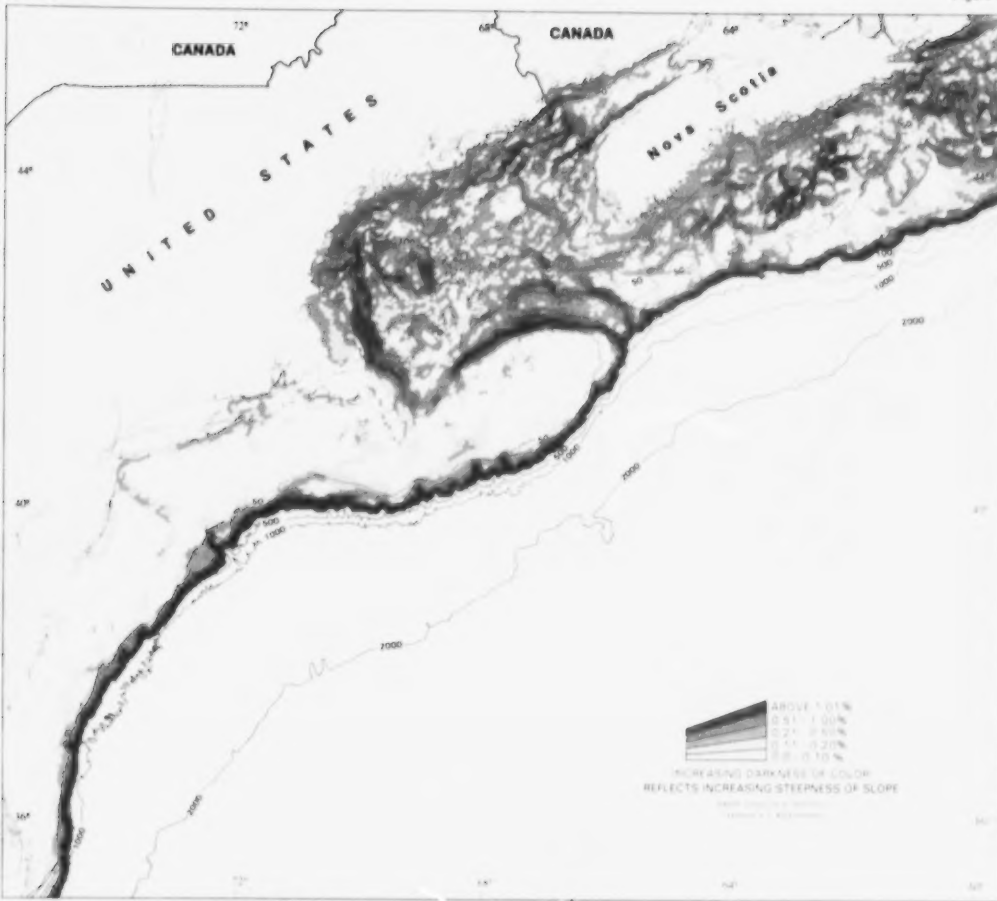


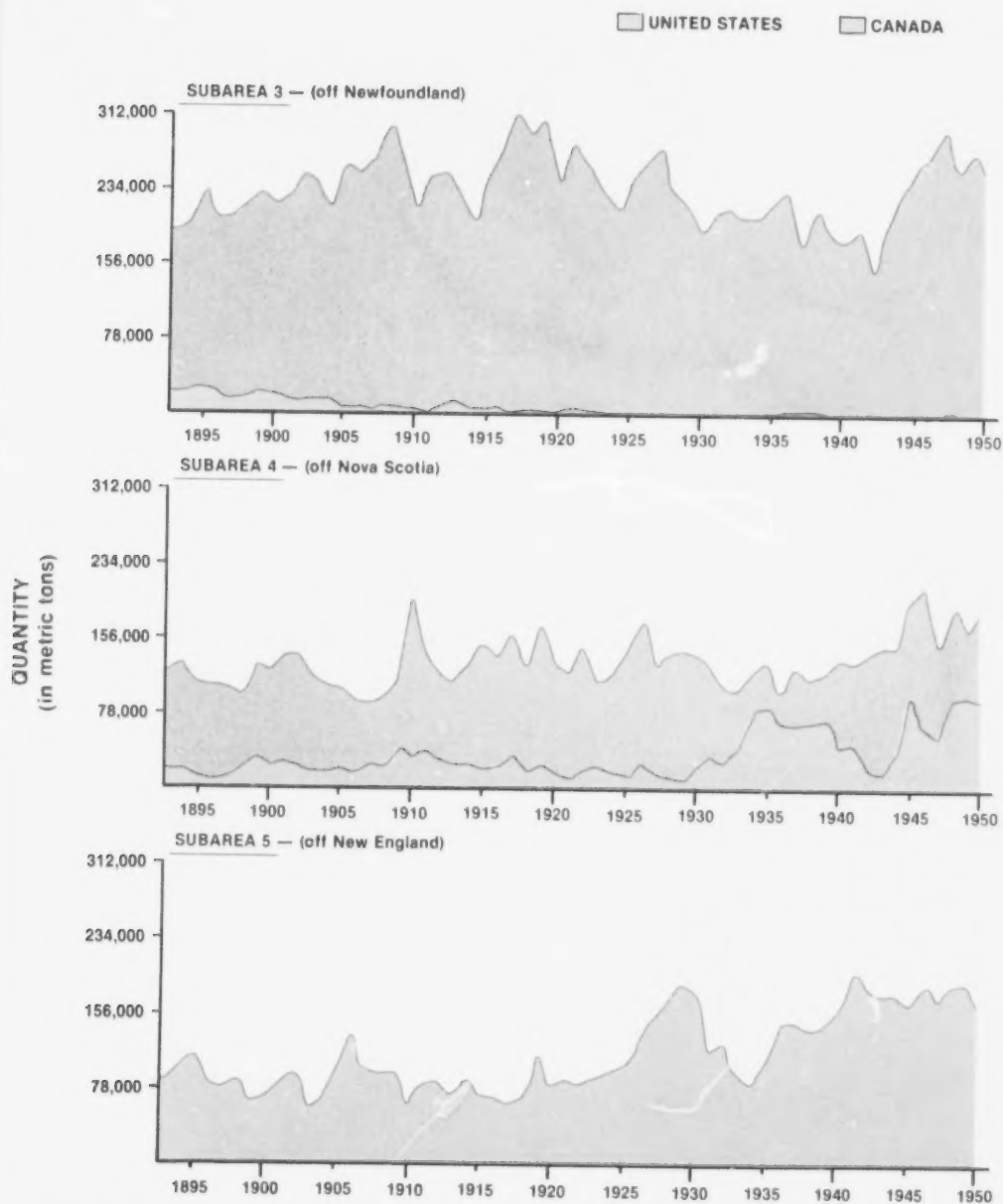
Figure 5



SEABED GRADIENTS — THE RATE OF DESCENT

Figure 8

UNITED STATES AND CANADA REPORTED GROUNDFISH
CATCHES IN SUBAREAS 3, 4 AND 5 FOR THE YEARS 1893—1950
(in metric tons)



NON-SCALLOP CATCHES OF THE UNITED STATES AND
CANADA FROM GEORGES BANK FOR THE YEARS 1904—1981
(in metric tons round weight)

Figure 9

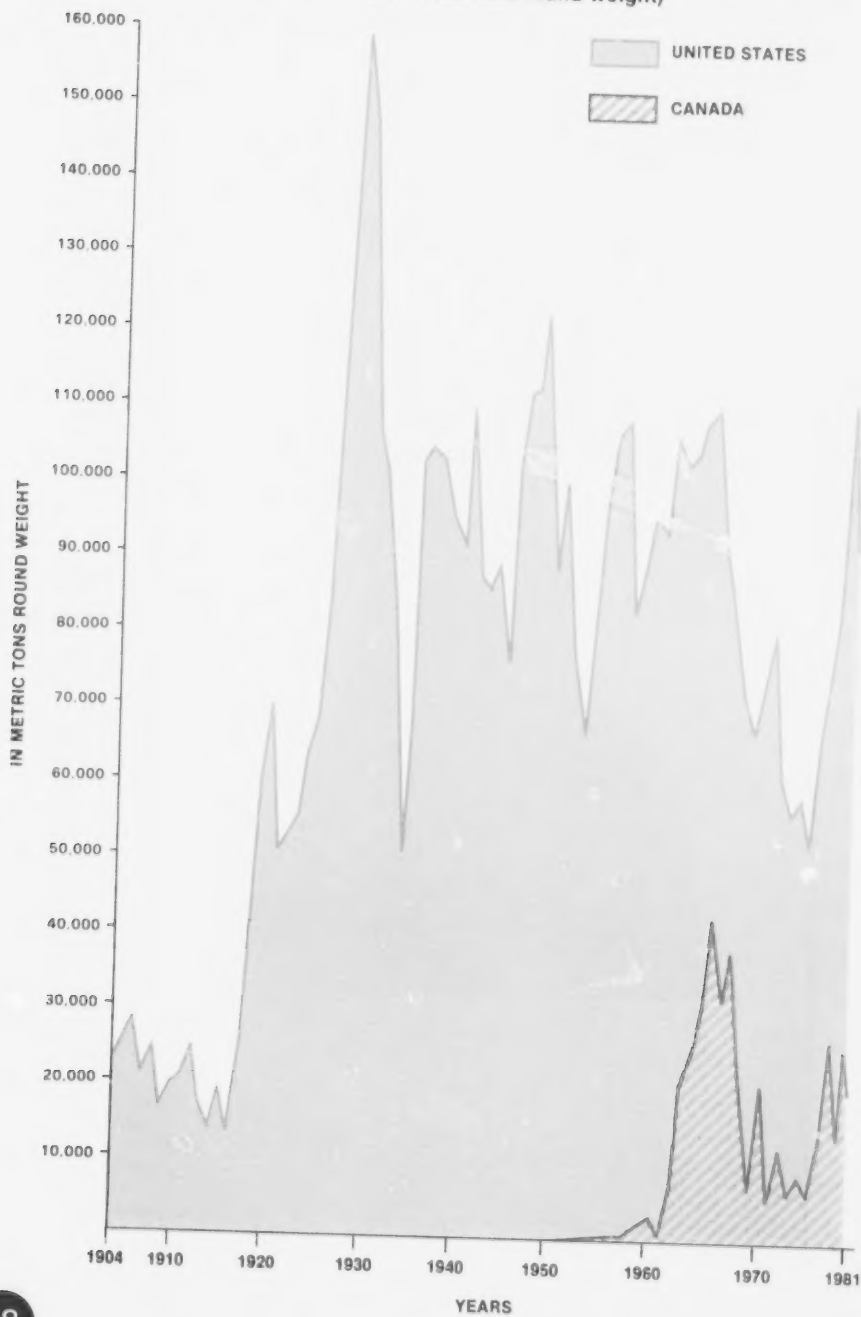


Figure 10

REPORTED SCALLOP CATCHES OF THE UNITED STATES
AND CANADA FROM GEORGES BANK FOR THE YEARS 1940—1981
(in metric tons meat weight)

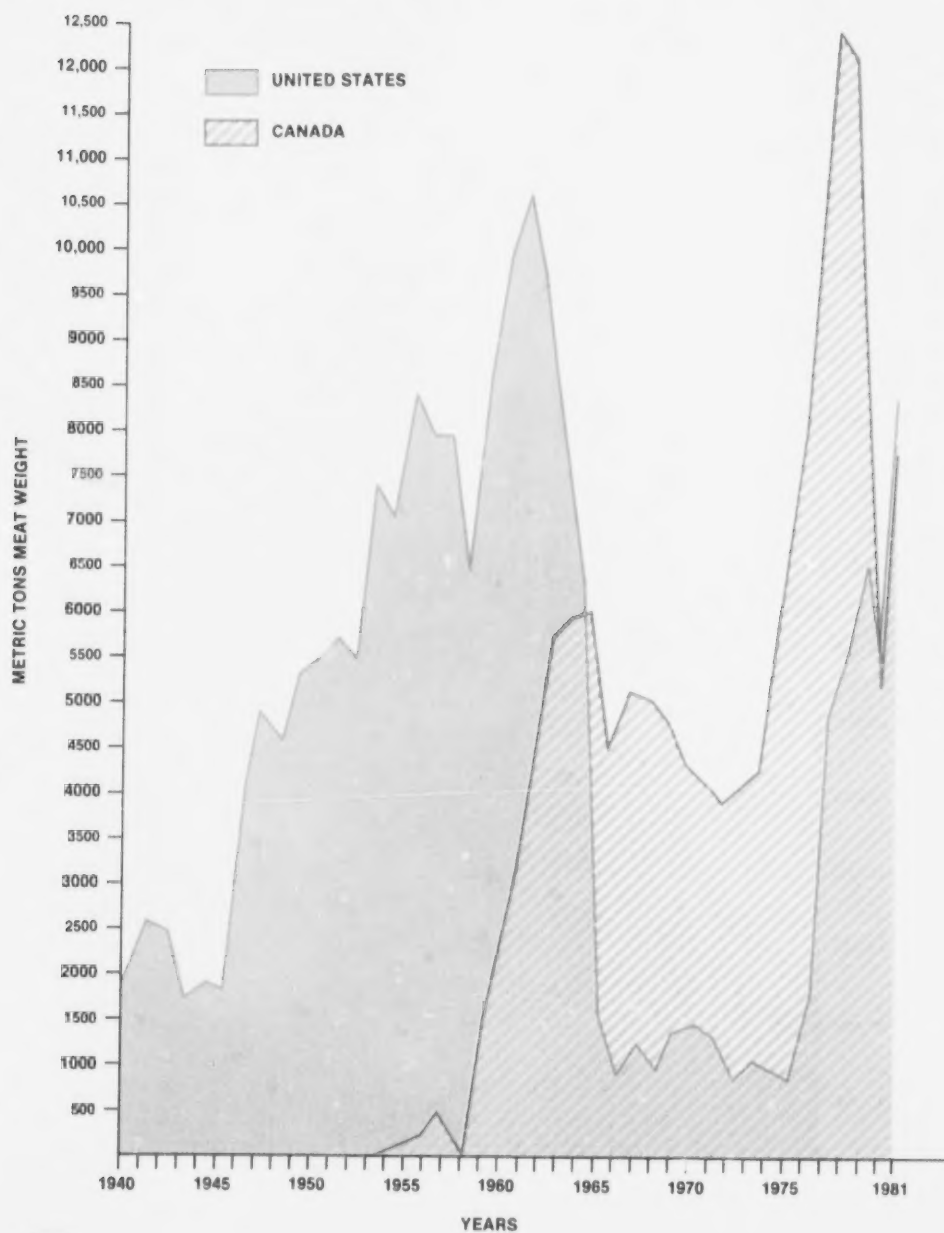
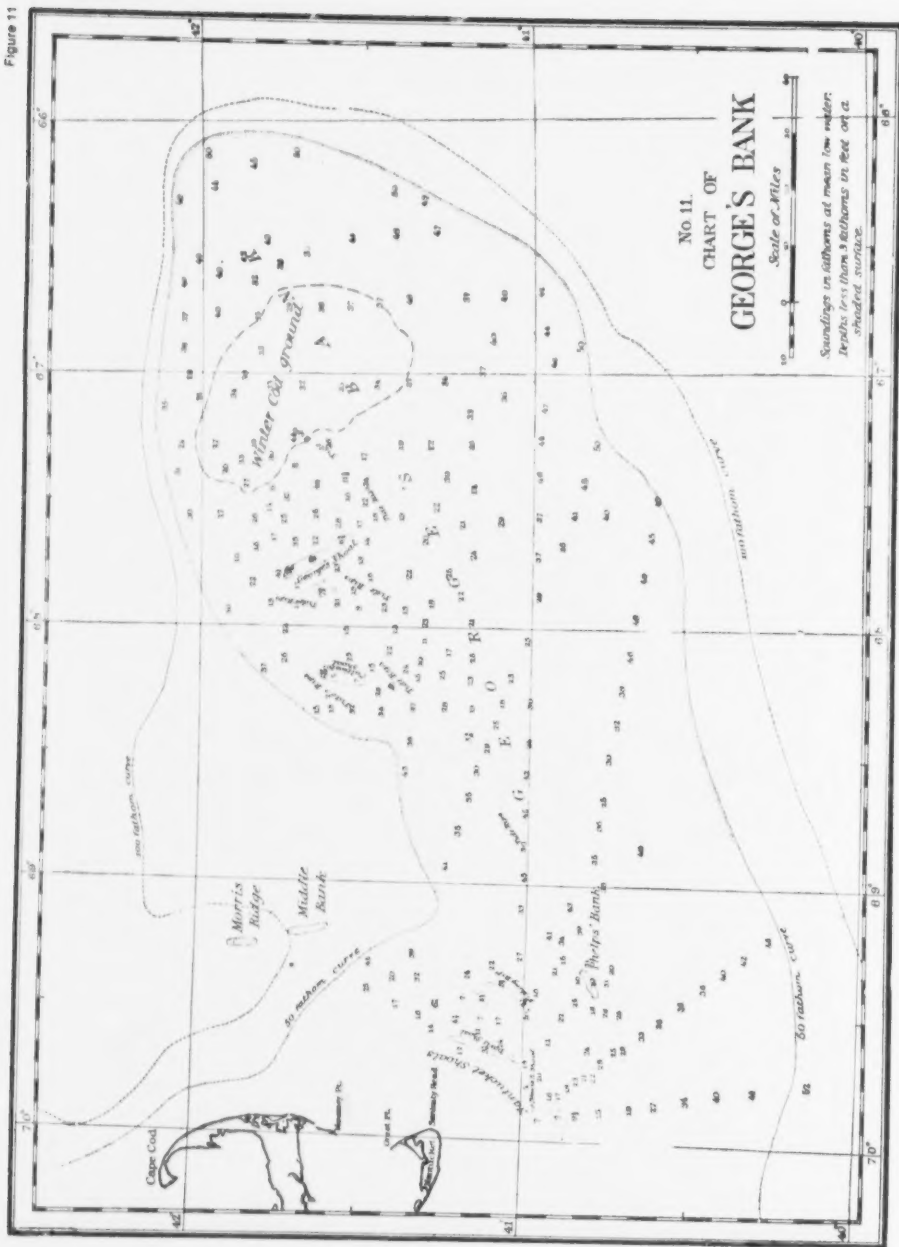
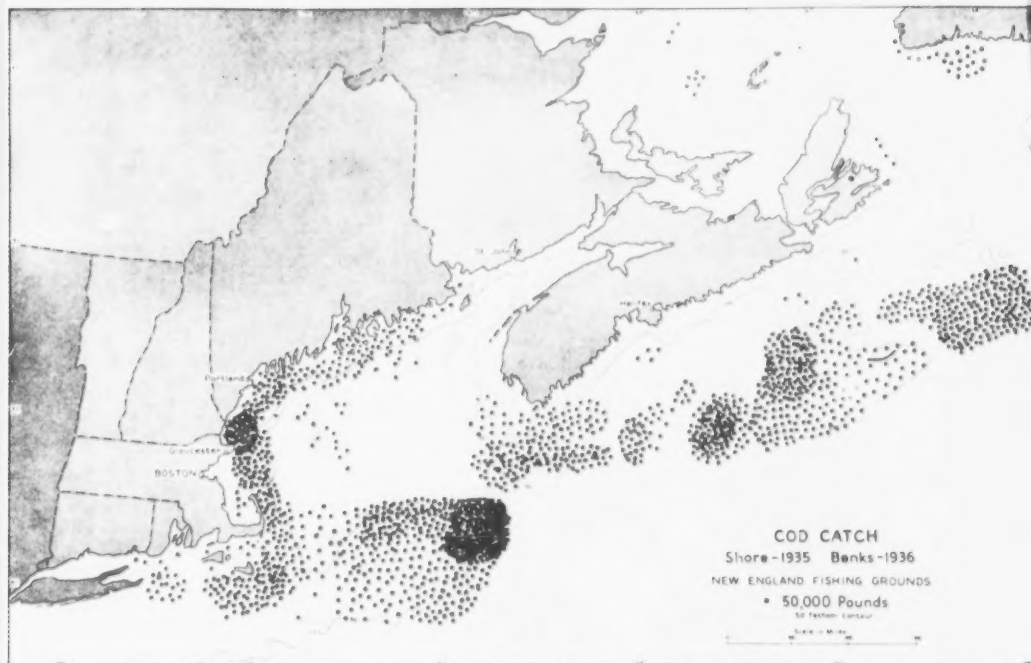


Figure 11



THE GEORGES BANK WINTER FISHING GROUND
 Reproduced from G.B. Gooda, The Fisheries and Fishing Industries of the United States, 1887 (Section III)

Figure 12



**NEW ENGLAND COD AND HADDOCK CATCHES ON
THE INSHORE GROUNDS (1935) AND THE OFFSHORE BANKS (1936)**

Each dot represents 50,000 pounds of catch

Source: E.A. Ackerman, *New England's Fishing Industry*, 1941 pp. 15, 17.

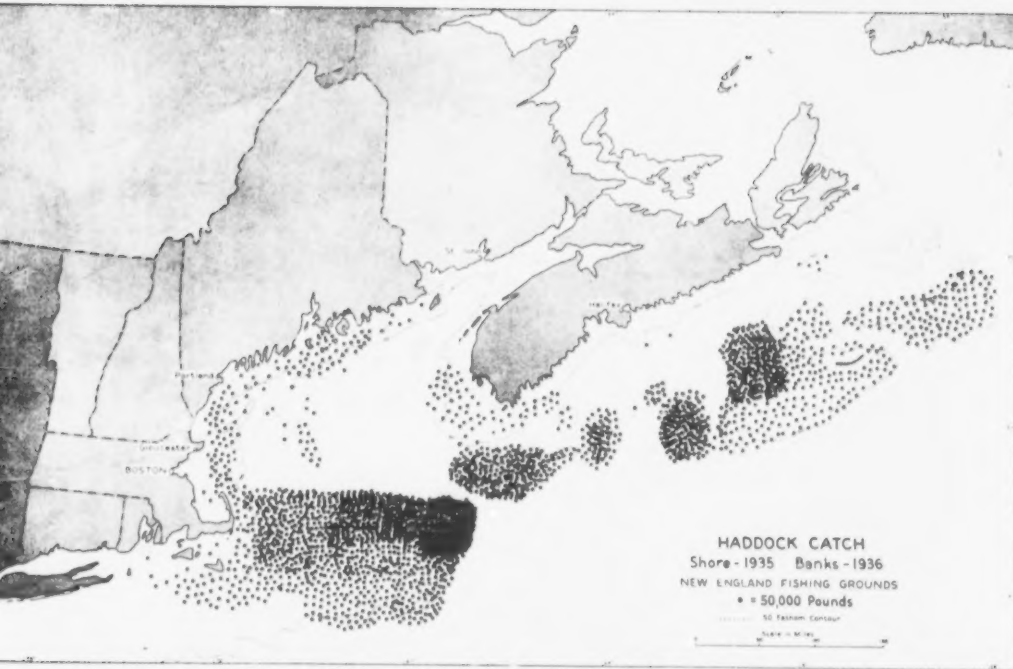
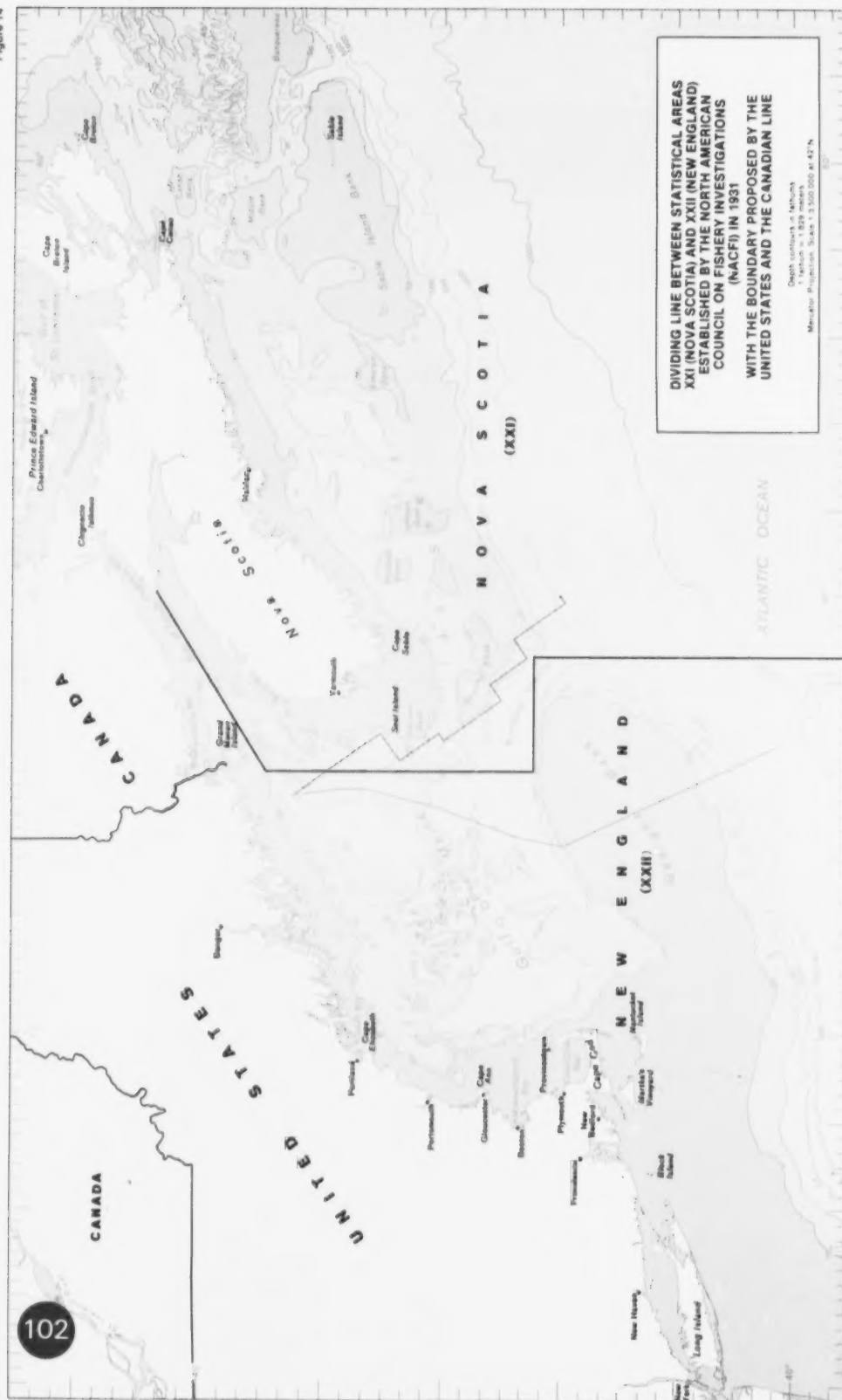


Figure 14



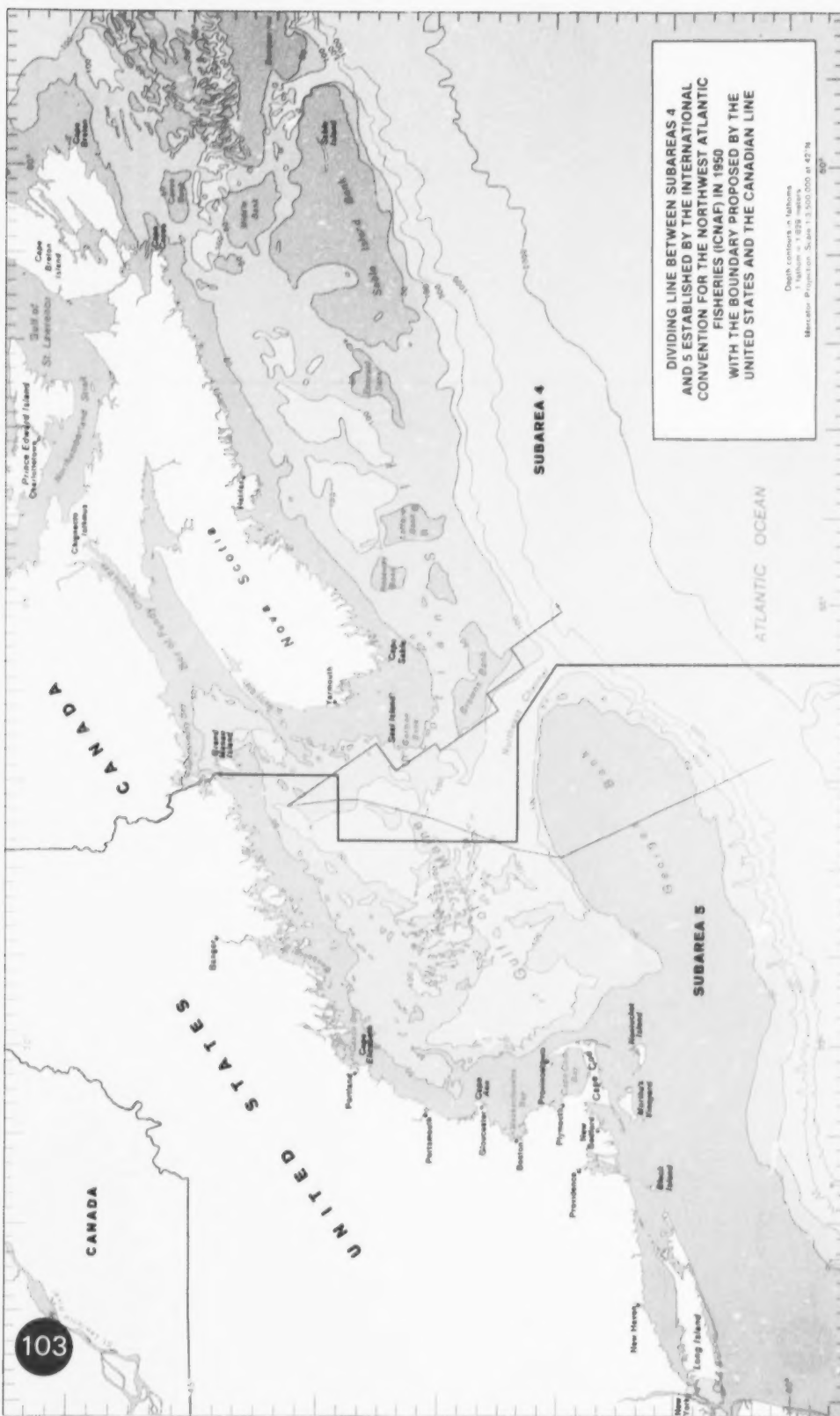
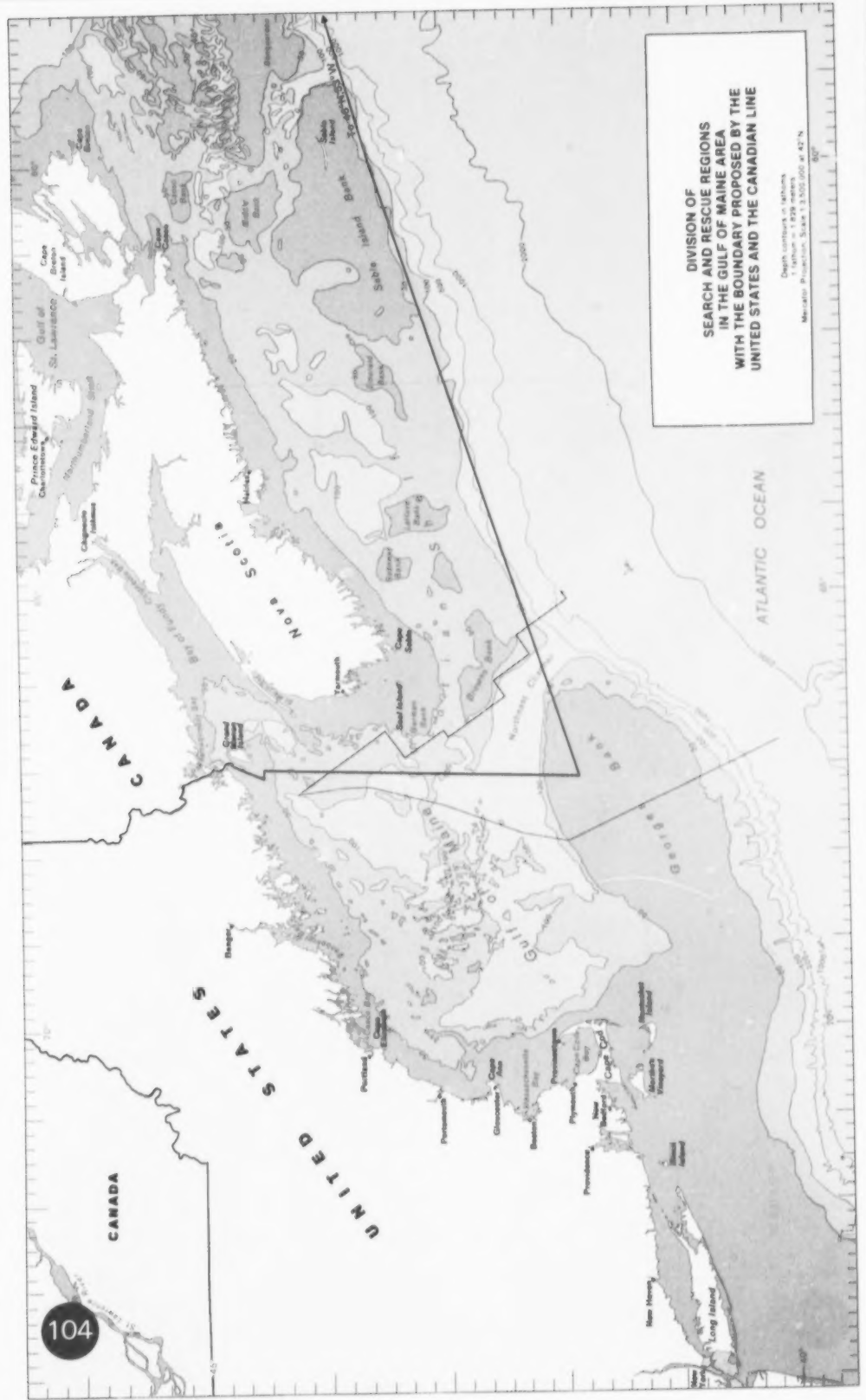


Figure 16



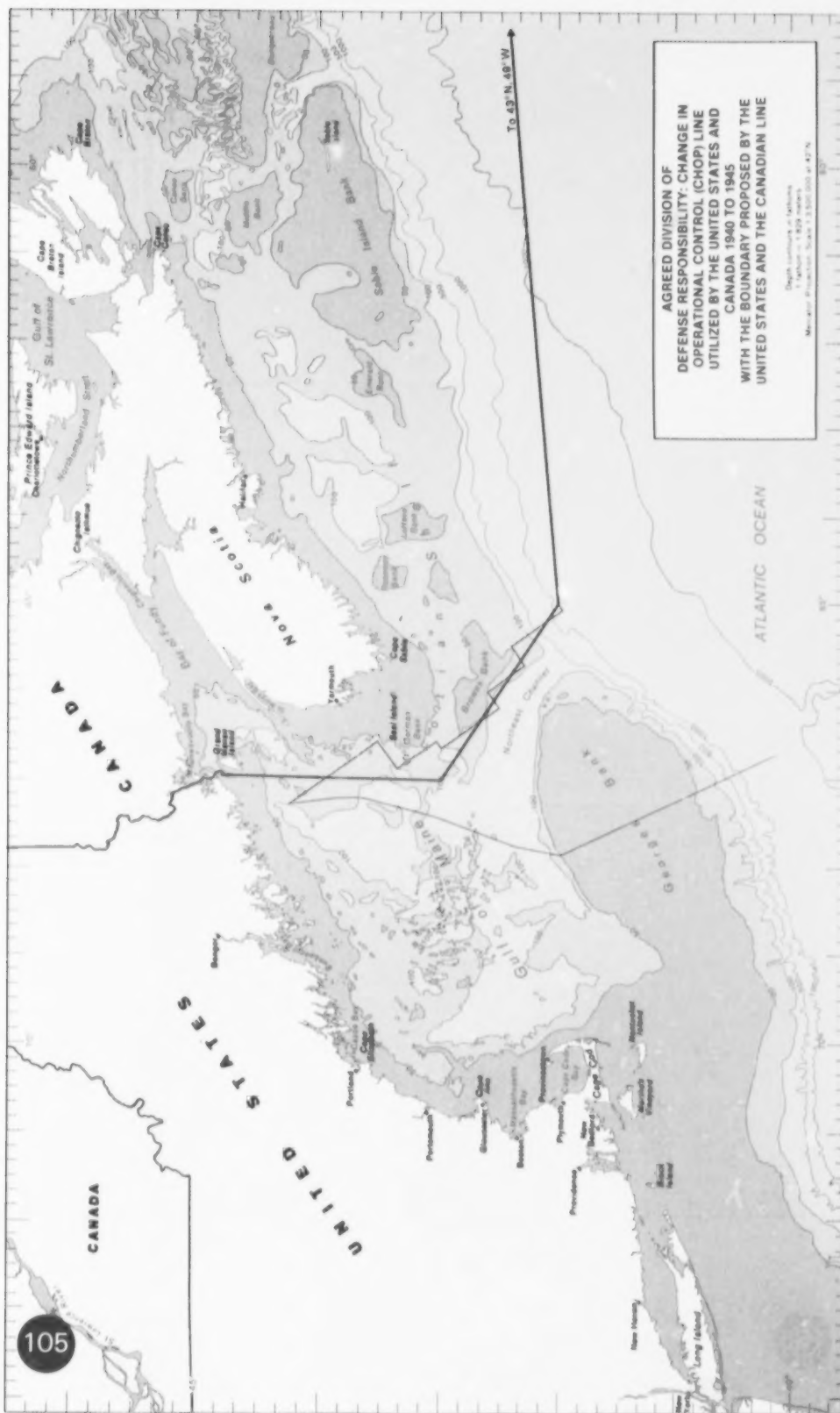


Figure 18

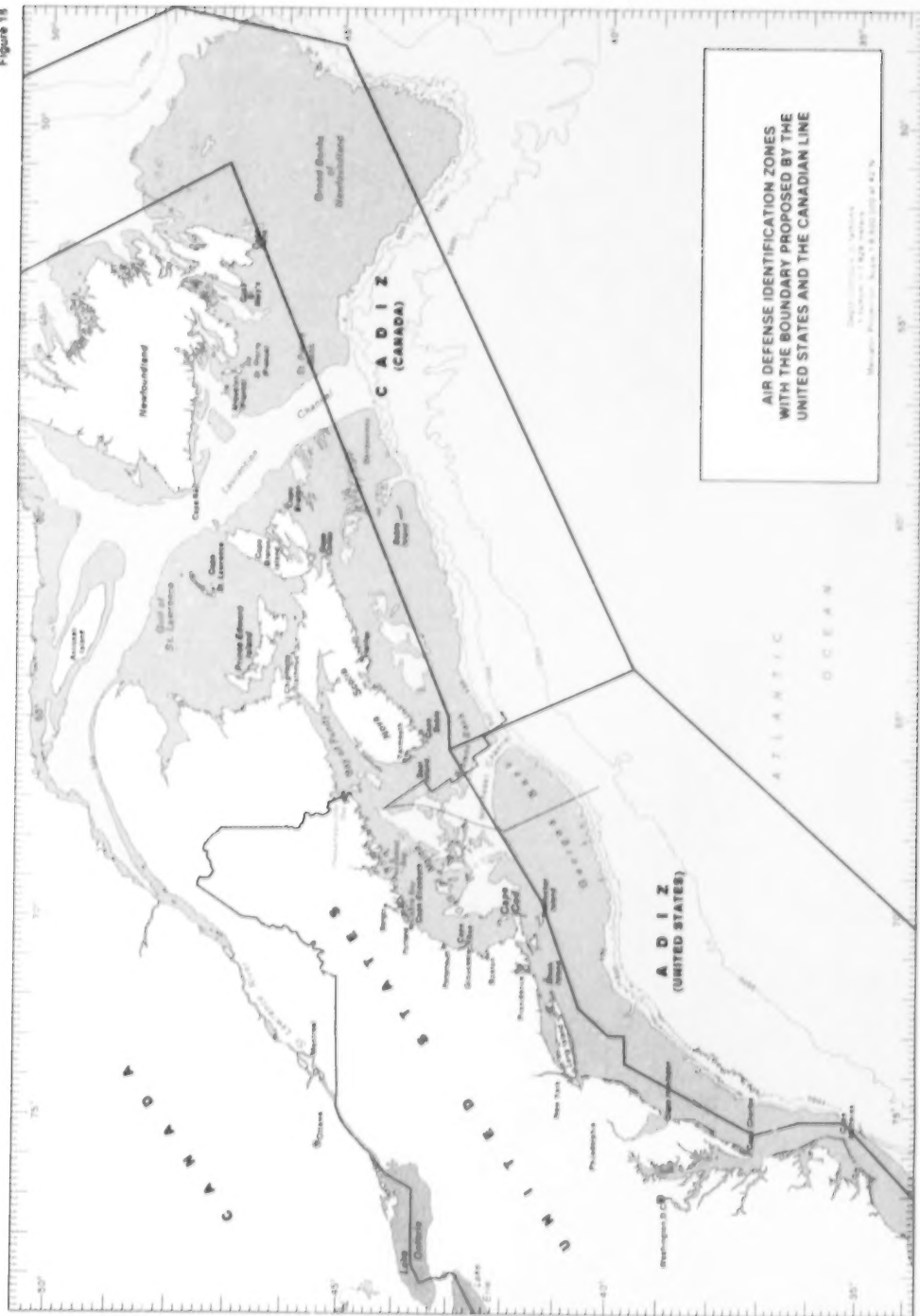
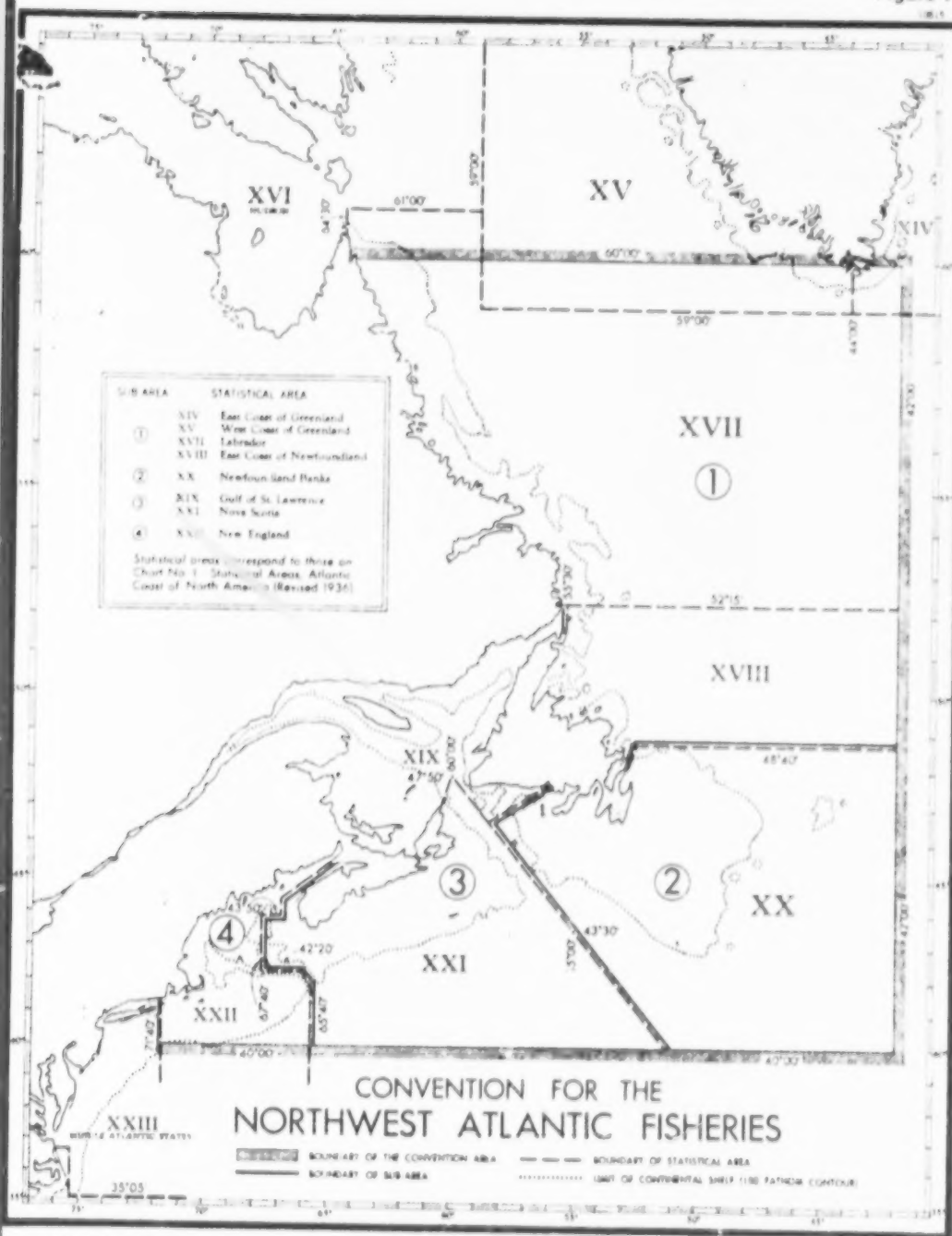


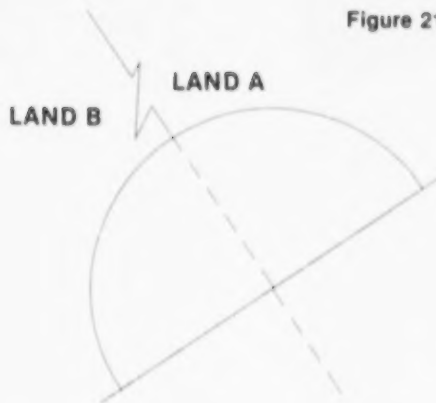
Figure 19



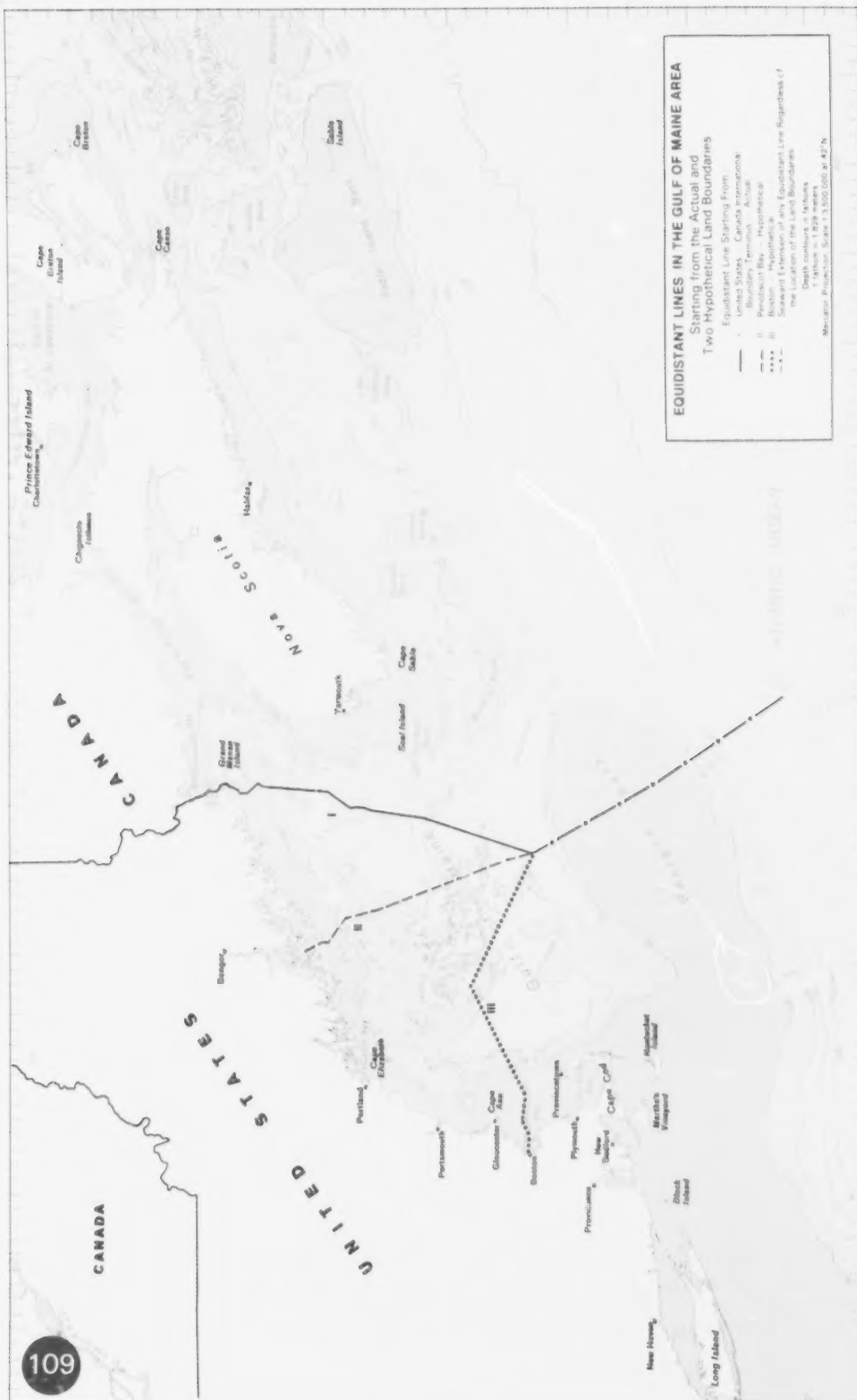
MAP ATTACHED TO THE UNITED STATES DRAFT CONVENTION (FEBRUARY 1948)
DEPICTING PROPOSED SUBAREA BOUNDARIES AND THE 100-FATHOM DEPTH CONTOUR
AS THE LIMIT OF THE CONTINENTAL SHELF



Figure 21



APPLICATION OF THE EQUIDISTANCE METHOD IN A DEEP CONCAVITY: REGARDLESS OF THE LOCATION OF THE LAND BOUNDARY, THE EQUIDISTANT LINE WILL INTERSECT THE CLOSING LINE OF THE CONCAVITY AT ITS MID-POINT AND WILL EXTEND SEAWARD AS A LINE ESSENTIALLY PERPENDICULAR TO THE CLOSING LINE



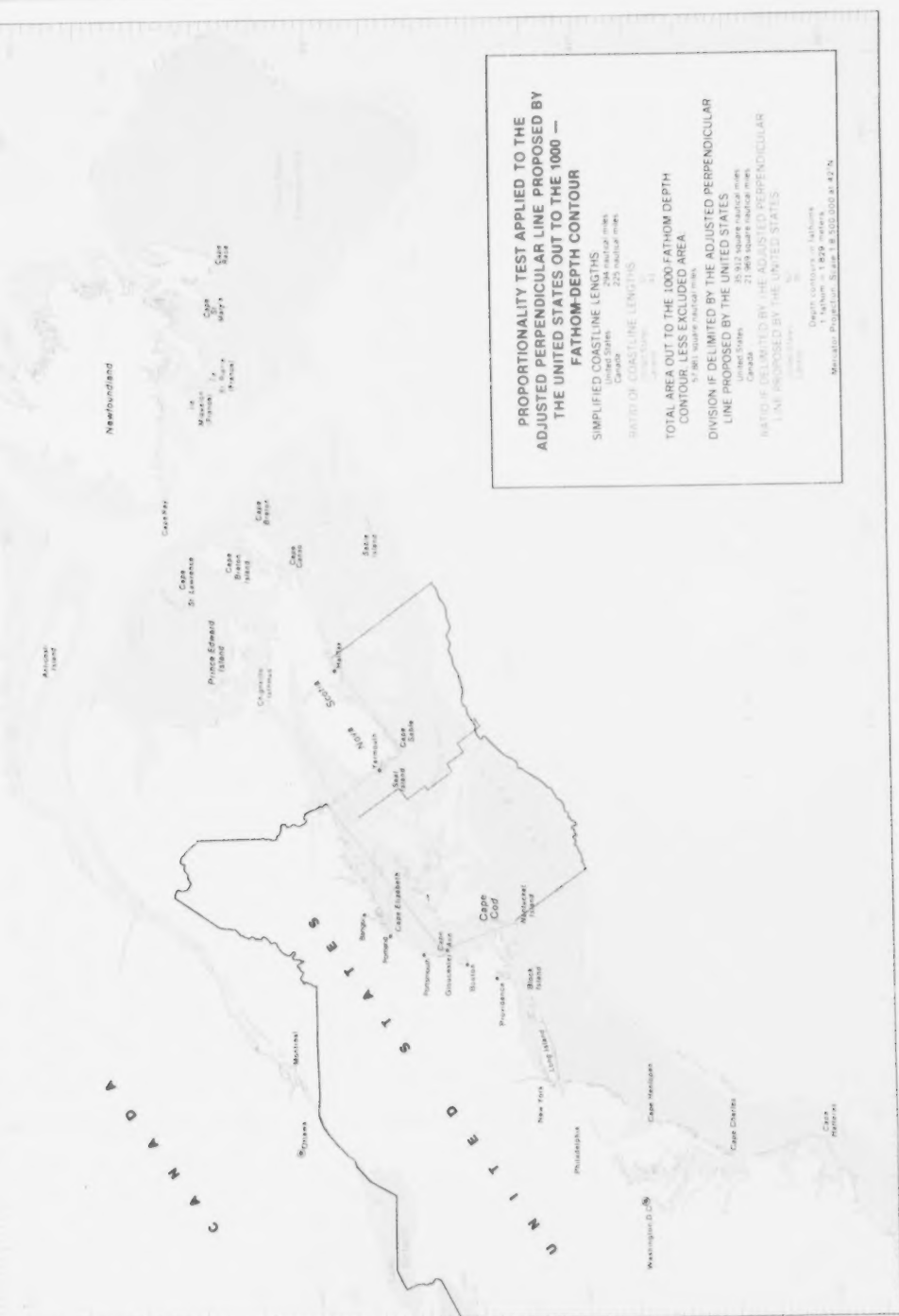


Figure 25

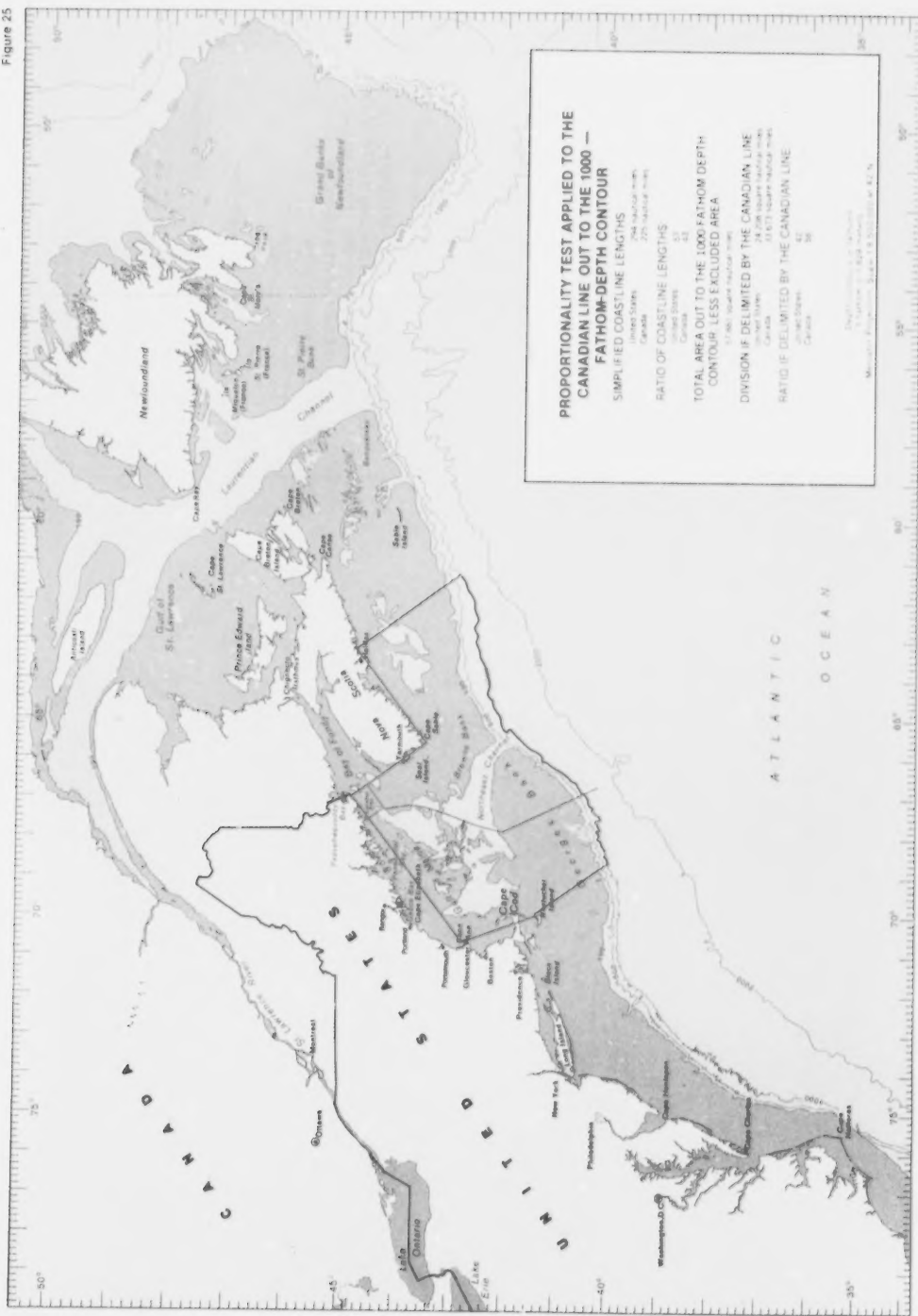
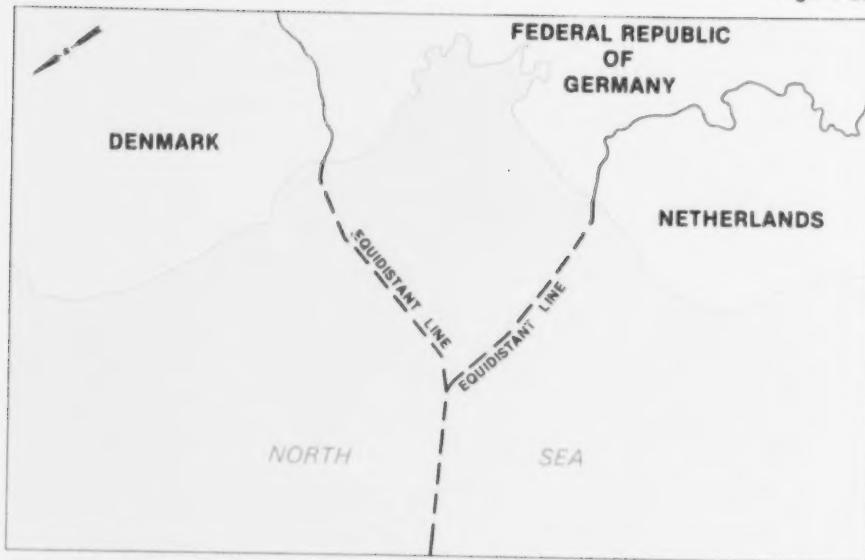


Figure 28

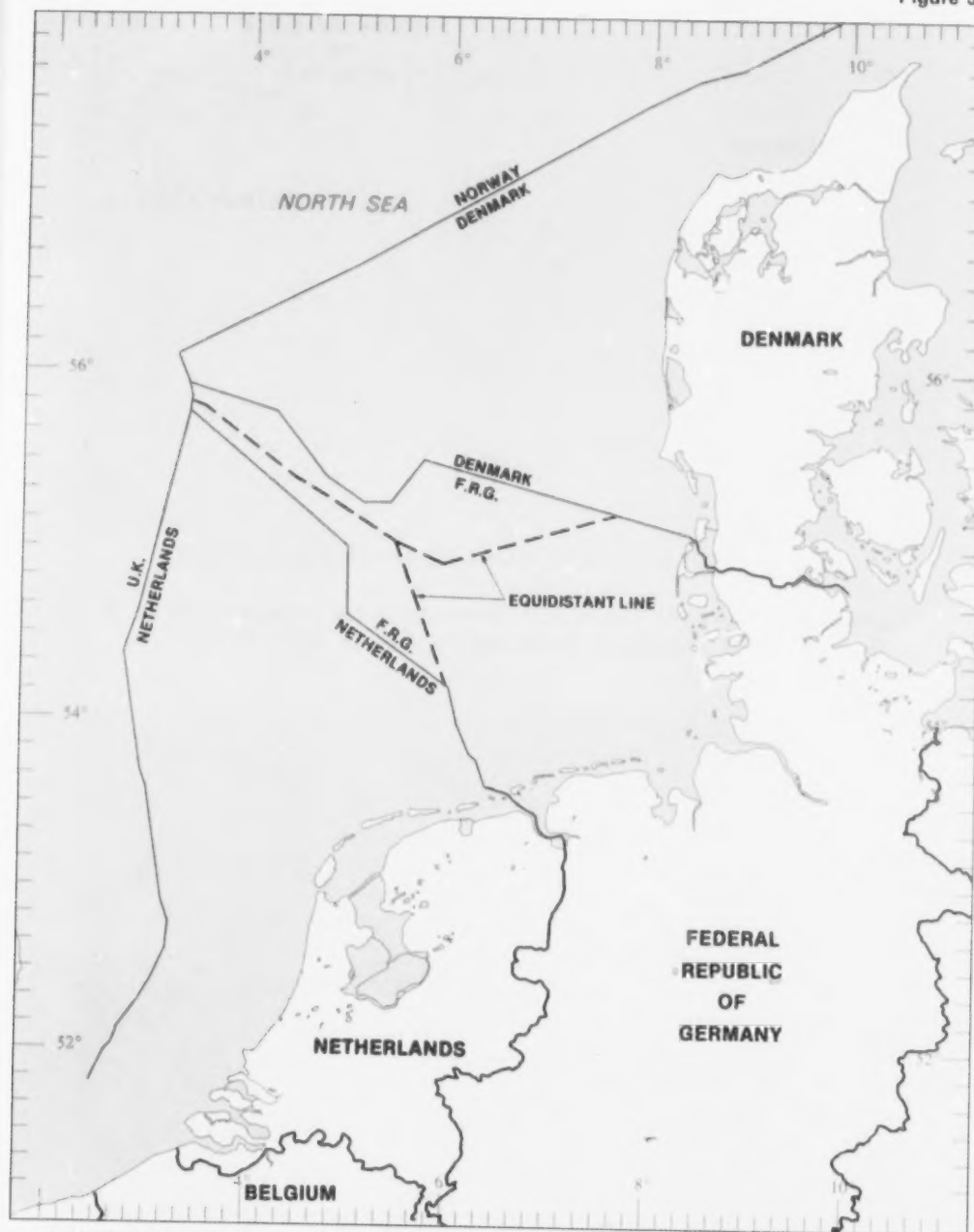


A. EQUIDISTANT-LINE BOUNDARIES IN THE NORTH SEA

Figure A is based upon Figure 18 in Memorial of the Federal Republic of Germany, *I.C.J. Pleadings, North Sea Continental Shelf*, Vol. I, p. 73.



B. EQUIDISTANT-LINE BOUNDARIES IN THE GULF OF MAINE



AGREED NORTH SEA CONTINENTAL SHELF BOUNDARIES AS COMPARED TO EQUIDISTANT LINES

The red lines represent the continental shelf boundaries established by agreements between the States concerned. The black, dashed lines represent the equidistant lines that had been proposed as boundaries by Denmark and the Netherlands.

Figure 31



EQUIDISTANT LINE SEGMENT IN THE GULF OF MAINE, DRAWN BY ANALOGY TO THE AGREED NORTH SEA CONTINENTAL SHELF BOUNDARIES

In the North Sea, the distance from the coast of the last equidistant point on the Federal Republic-Denmark boundary is 15.1% of the distance from the coast to the end-point of the boundary. For the Federal Republic-Netherlands boundary, the comparable proportion is 22.6%.

The length of the equidistant line pictured here was determined by analogy to these agreed North Sea boundaries. The distance of the indicated parts are 15.1% and 22.6%, respectively, of the distance from the international boundary terminus to the point on the equidistant line that is 200 nautical miles from the United States and Canada.

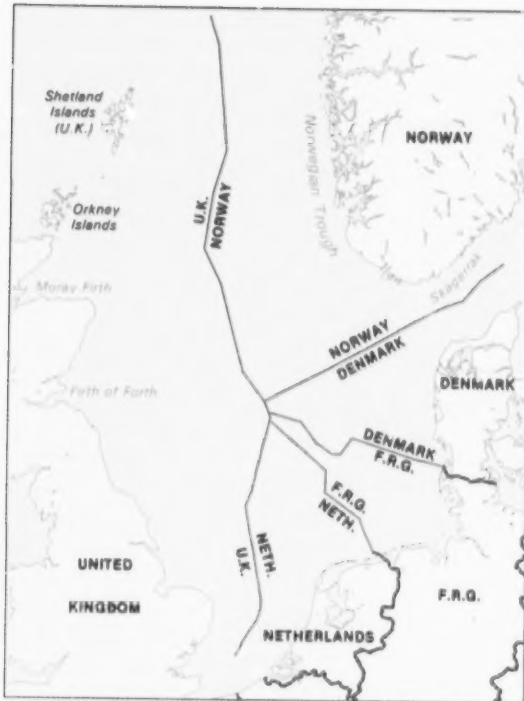
Figure 32



AGREED NORTH SEA CONTINENTAL SHELF BOUNDARIES AS COMPARED TO THE SECTOR LINES PROPOSED BY THE FEDERAL REPUBLIC OF GERMANY

The red lines depict the continental shelf boundaries established by agreements between the States concerned. The black, dashed lines represent the sector lines that had been proposed boundaries by the Federal Republic of Germany, *I.C.J. Pleadings, North Sea Continental Shelf*, Vol. I, p. 85, Figure 21.

Figure 33



A. AGREED NORTH SEA CONTINENTAL SHELF BOUNDARIES



B. HYPOTHETICAL NORTH SEA CONTINENTAL SHELF BOUNDARIES IF THE NORTH SEA WERE AN OPEN OCEAN



EQUIDISTANT-LINE SEGMENT IN THE GULF OF MAINE, DRAWN BY ANALOGY TO THE AGREED BAY OF BISCAY BOUNDARY

In the Bay of Biscay, the distance from the land boundary to the last equidistant point on the agreed continental shelf boundary is 44% of the distance from the land boundary to the point where an equidistant line crosses the closing line.

The length of the equidistant line pictured here was determined by analogy to the agreed Bay of Biscay boundary. The distance of the endpoint of the line to the international boundary terminus is 44% of the distance from the international boundary terminus to the point where the equidistant line crosses the Nantucket Island—Cape Sable closing line.

Figure 39



AGREED BAY OF BISCAY CONTINENTAL SHELF BOUNDARY AS COMPARED TO A LINE DRAWN PERPENDICULAR FROM POINT Q TO THE CLOSING LINE

The black line begins at the start of the continental shelf boundary (Point Q) and is perpendicular to the closing line.

Figure 40



TUNISIA/LIBYA CONTINENTAL SHELF BOUNDARY AS COMPARED TO THE EQUIDISTANT LINE

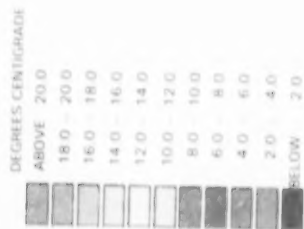
The red line represents the continental shelf boundary as described in *I.C.J. Reports 1982*, p. 90, map No. 3. The black, dashed line is the equidistant line.

AVERAGE BOTTOM TEMPERATURES

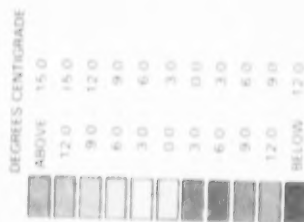
Figure 10



A. Cold season (Julian days 29 to 98)



B. Warm season (Julian days 239 to 308)



C. Difference between cold season and warm season bottom temperatures

SURFACE TEMPERATURE AND TEMPERATURE GRADIENTS



A. Surface temperatures — 14 June 1979



C. Surface temperatures with temperature gradients — 14 June 1979

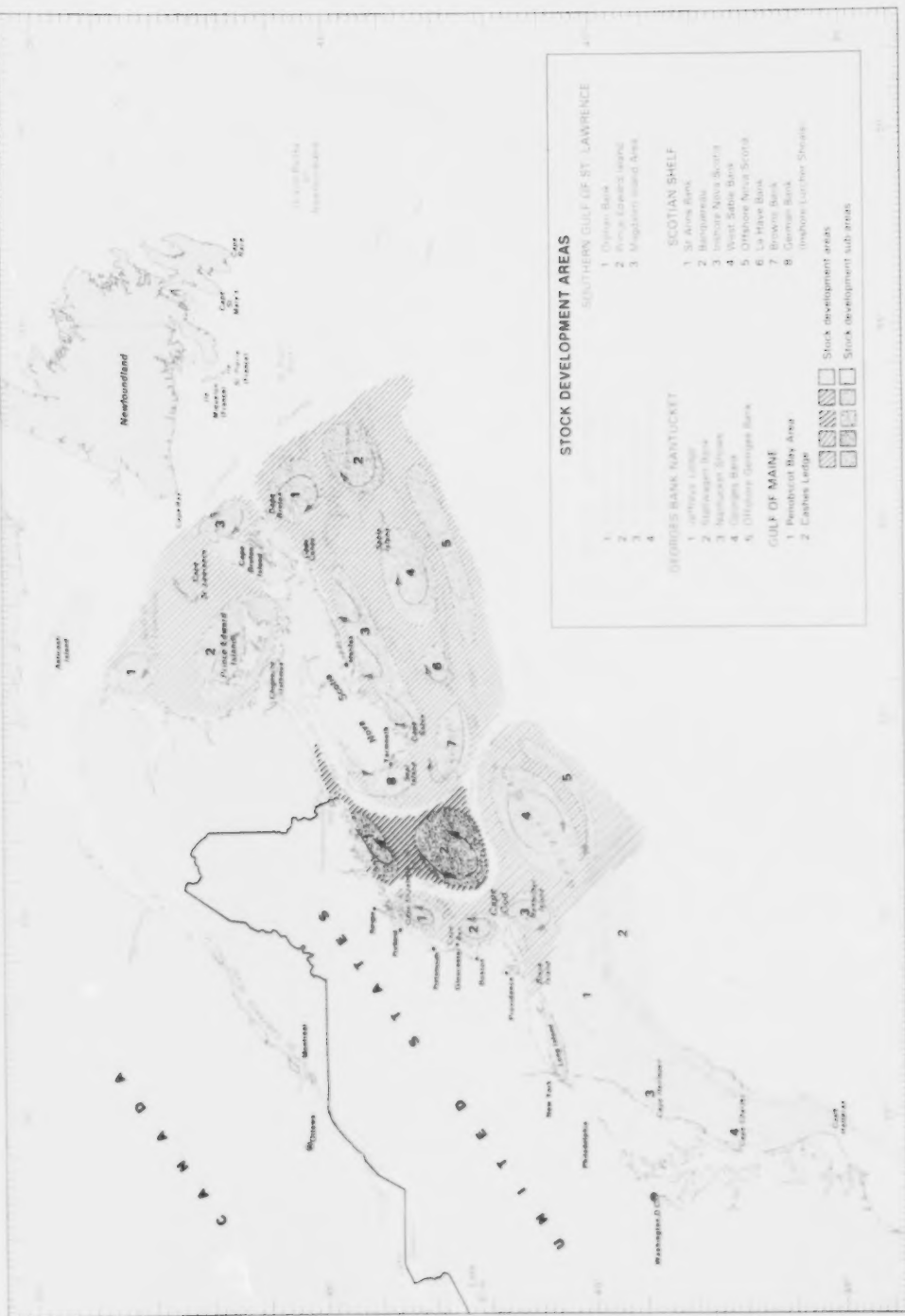


Figure 11



B. Temperature gradients — 14 June 1979

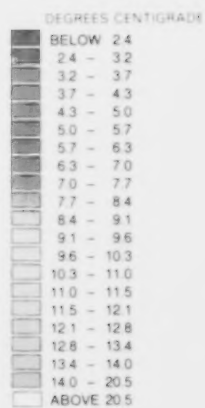
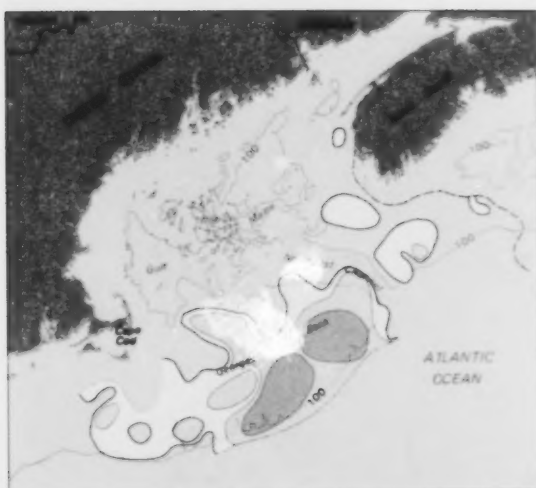
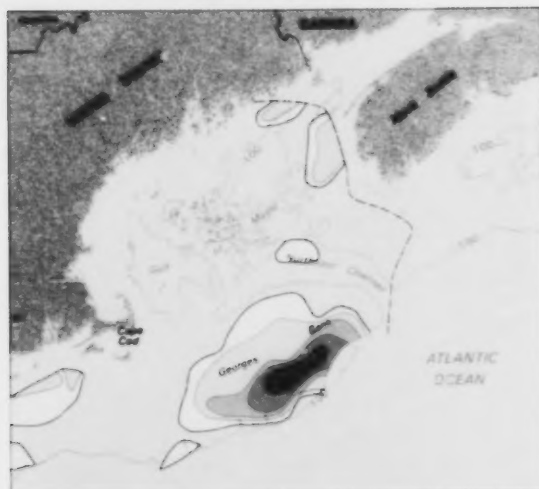


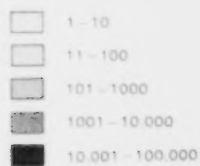
Figure 31



APRIL — MAY, 1974



APRIL — MAY, 1977



Number of Larvae per 10 Square Meters of Surface Area

— Eastern Limit of Sampling



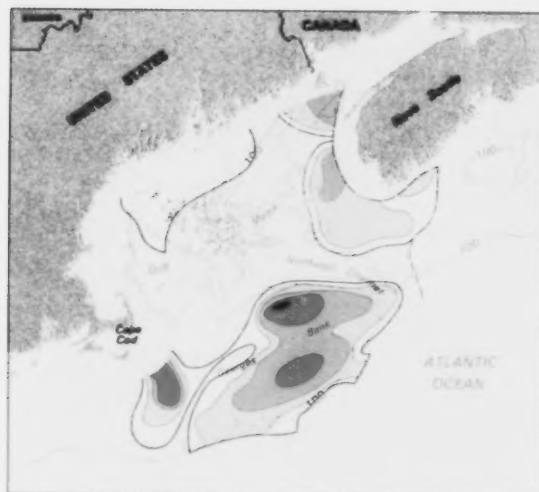
APRIL — MAY, 1980

DISTRIBUTION OF COD LARVAE

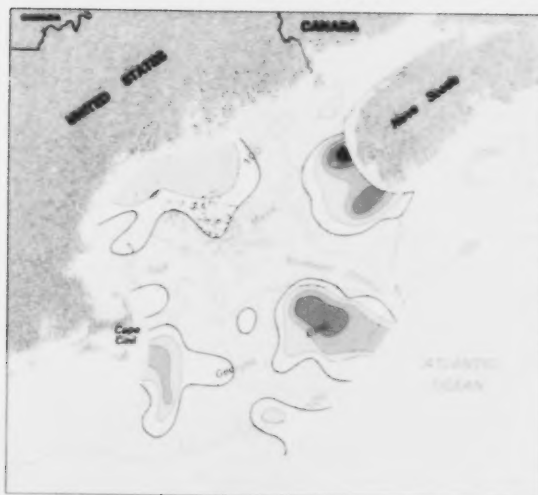
Figure 32



Figure 33



SEPTEMBER-OCTOBER, 1973



SEPTEMBER-OCTOBER, 1974

- 1-10
- 11-100
- 101-1,000
- 1,001-10,000
- 10,001-100,000

Number of Larvae per 10 Square Meters of Surface Area

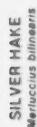
Eastern Limit of Sampling



SEPTEMBER-OCTOBER, 1980

DISTRIBUTION OF HERRING LARVAE







Urophycis chuss — Red
Urophycis tenuis — White

Apparatus mounted with separate stocks

Areas of frequent disturbance

Maximum Power Point (MPP) = 10.500 (0.000) W 47.5%

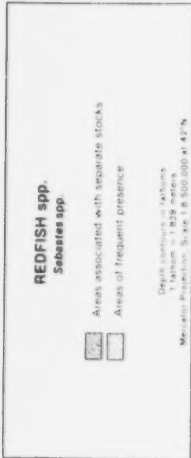




Figure 44

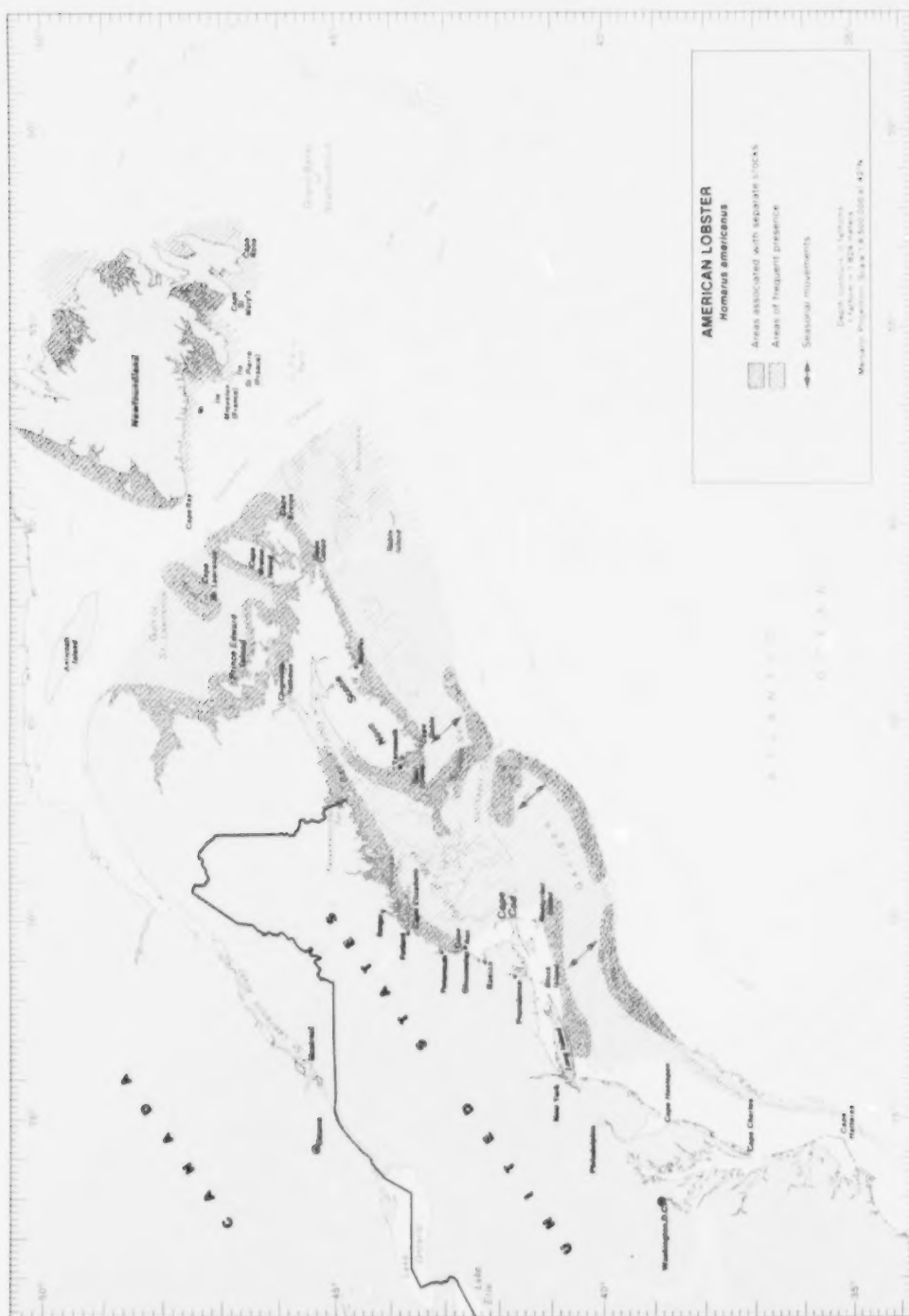


Figure 45

Figure 46

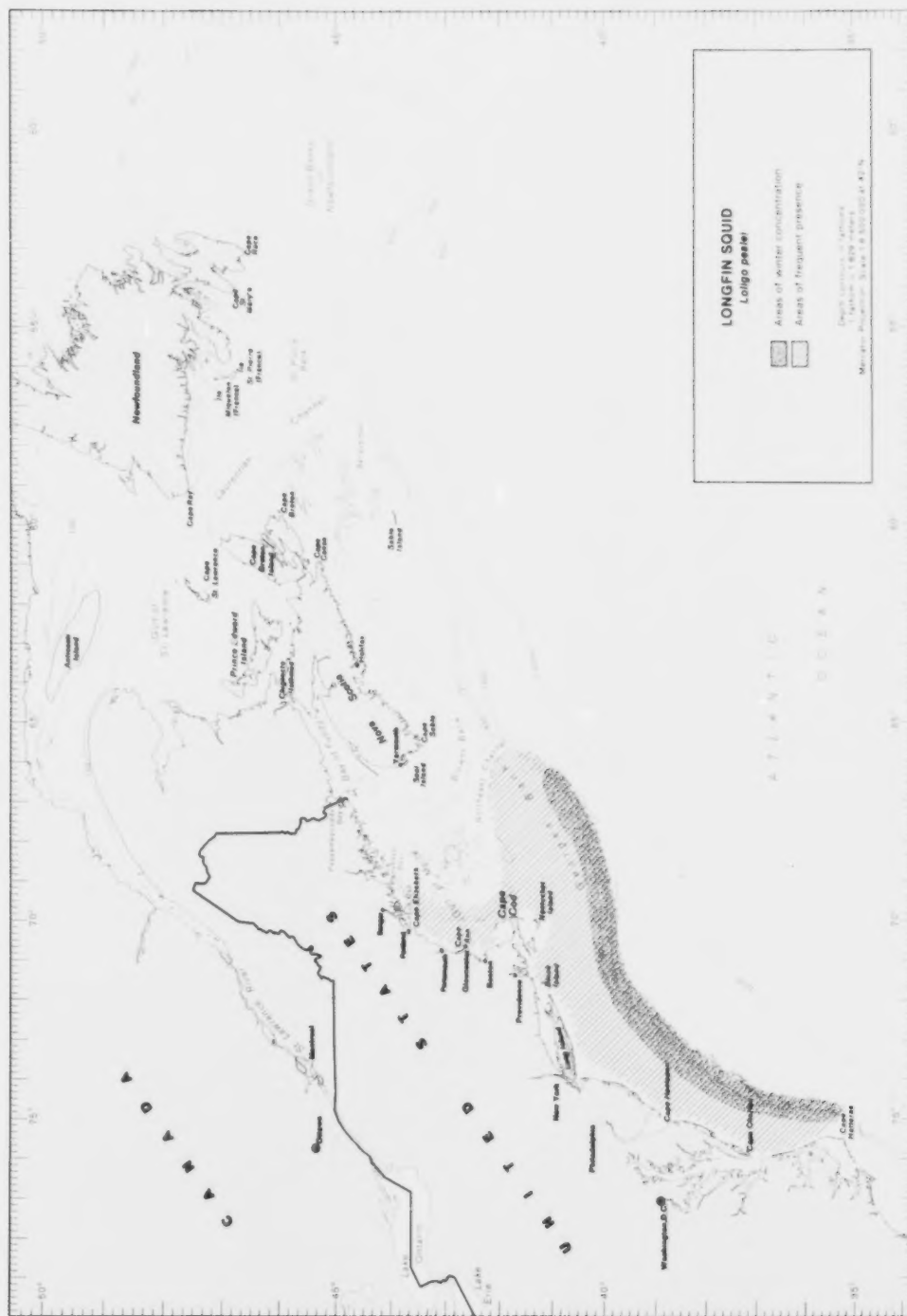
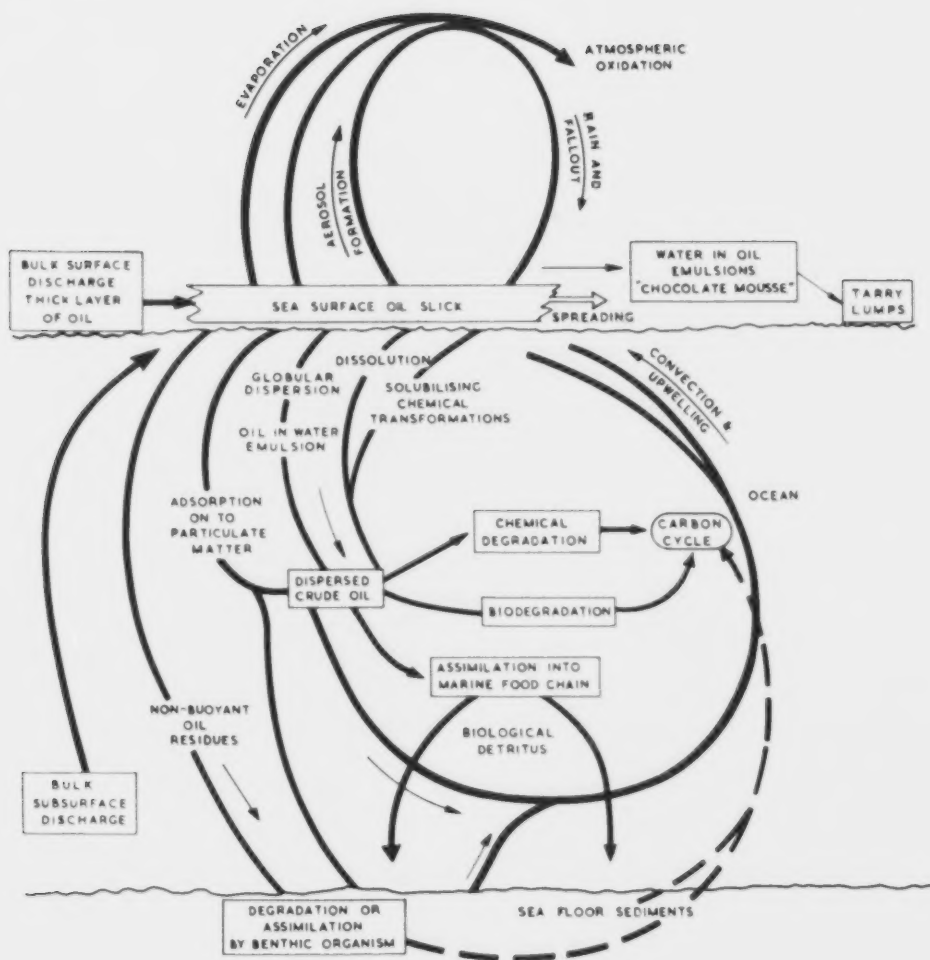
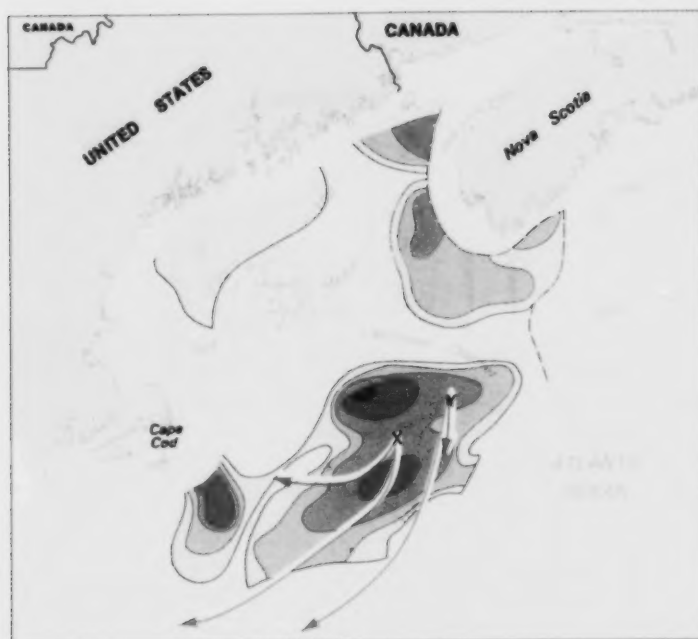


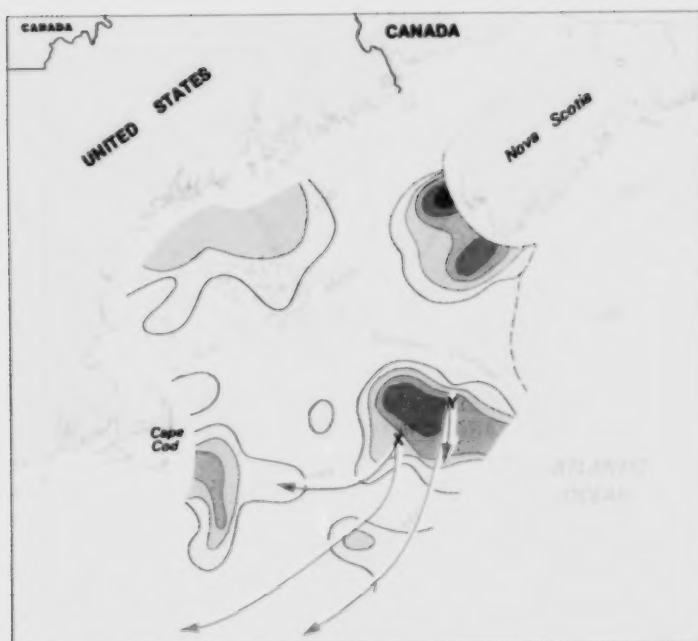
Figure 1



PROCESSES INVOLVED IN THE FATE OF CRUDE OIL DISCHARGED INTO THE MARINE ENVIRONMENT

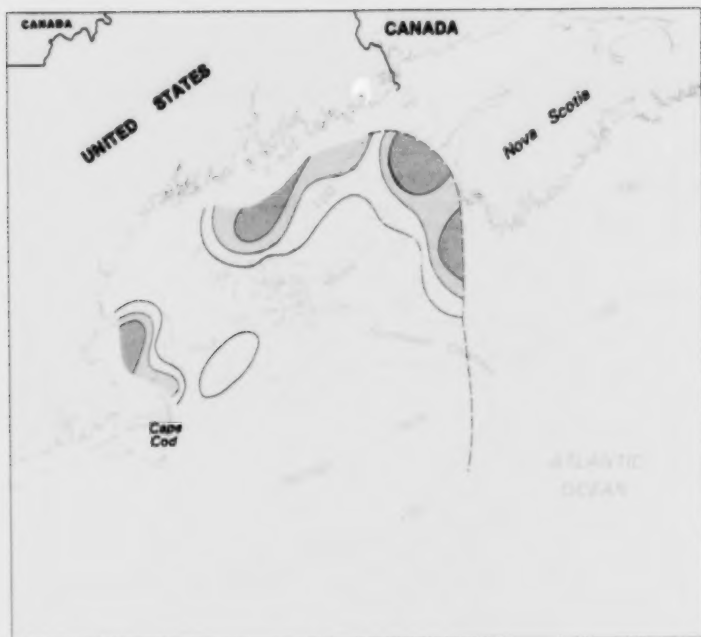


SEPTEMBER—OCTOBER, 1973



SEPTEMBER—OCTOBER, 1974

Figure 7



SEPTEMBER—OCTOBER, 1980

**DISTRIBUTIONS OF HERRING LARVAE OVERLAID
WITH 90 DAY TRAJECTORIES OF OIL DISCHARGED
ON GEORGES BANK AT POINTS X AND Y
ON JULIAN DAY 213 (c. August 1)**

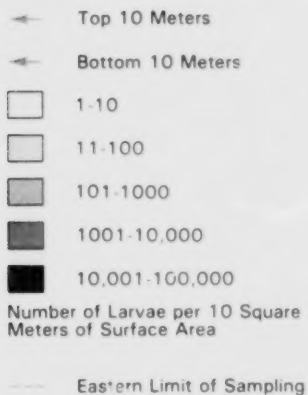


Figure 25

HYDRODYNAMICS AND OIL SPILL FATES COMPUTER MODELS

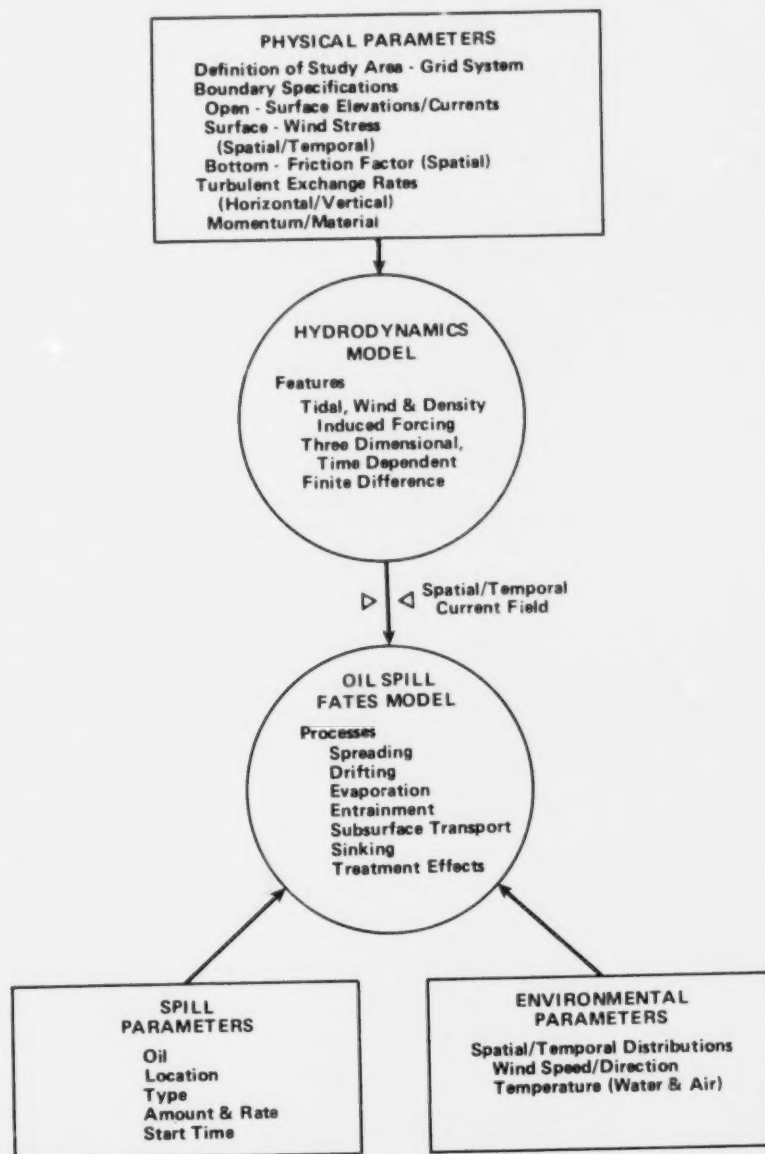
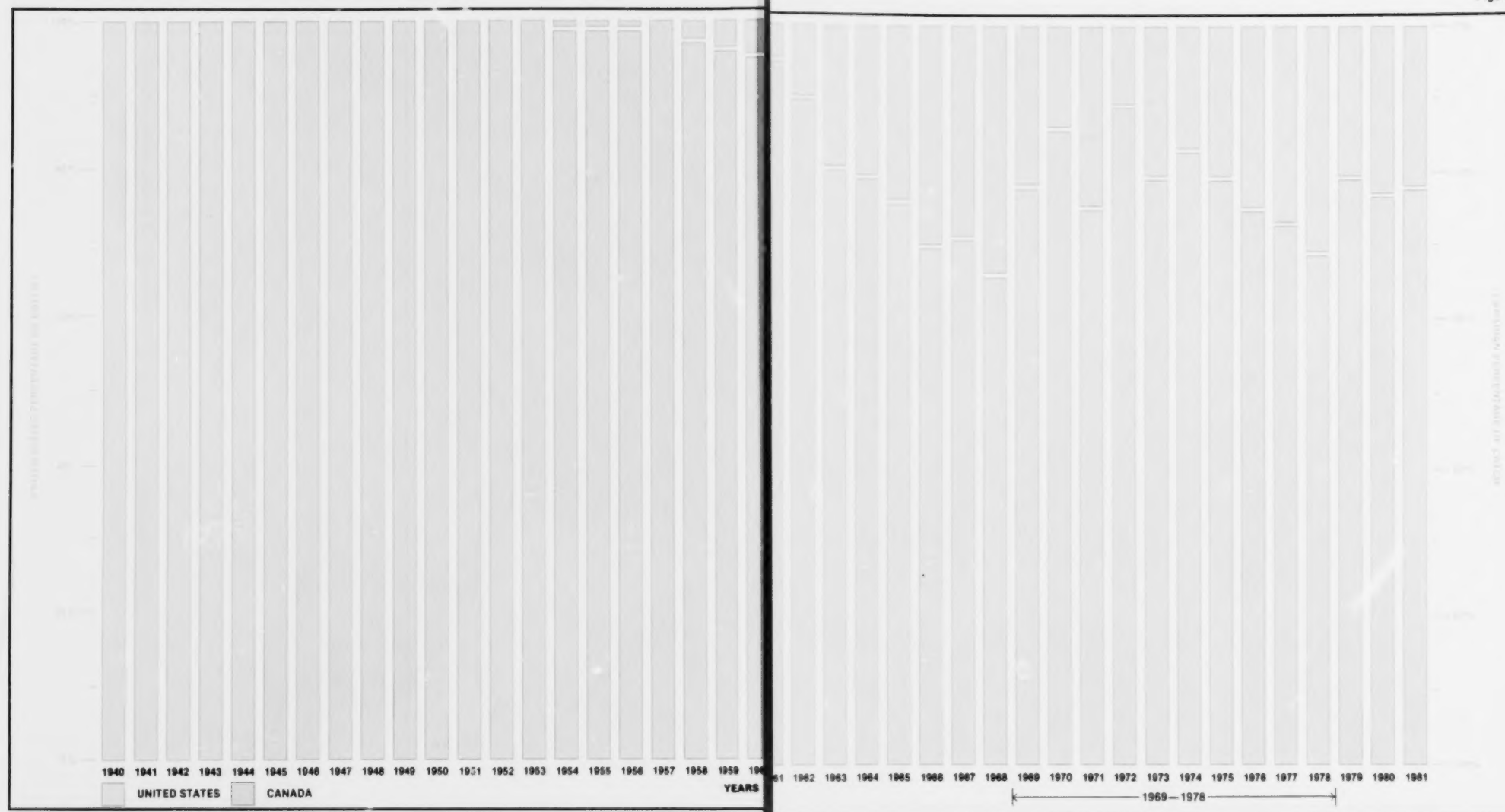


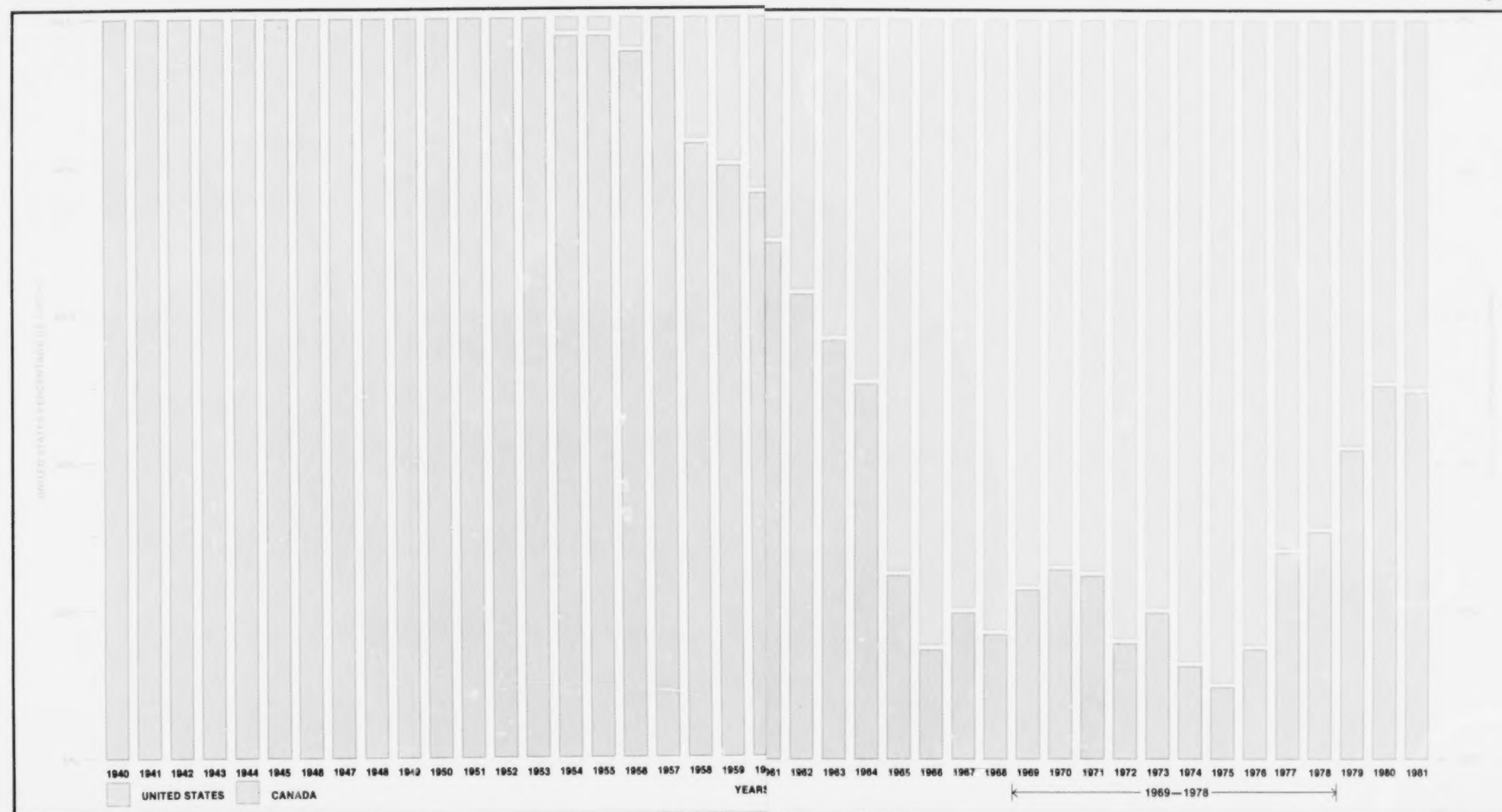
Figure 1



Source: Appendix E, Table 1

RELATIVE SHARES OF COMBINED UNITED STATES/CANADIAN TOTAL CATCH ON GEORGES BANK BY WEIGHT (1940-1981)

Figure 2



Source: Appendix E, Table 2

RELATIVE SHARES OF COMBINED UNITED STATES/CANADIAN
SCALLOP CATCH ON GEORGES BANK BY WEIGHT (1940-1981)

Figure 9

GROSS DOMESTIC PRODUCT BY SUB-SECTOR IN NOVA SCOTIA — 1980

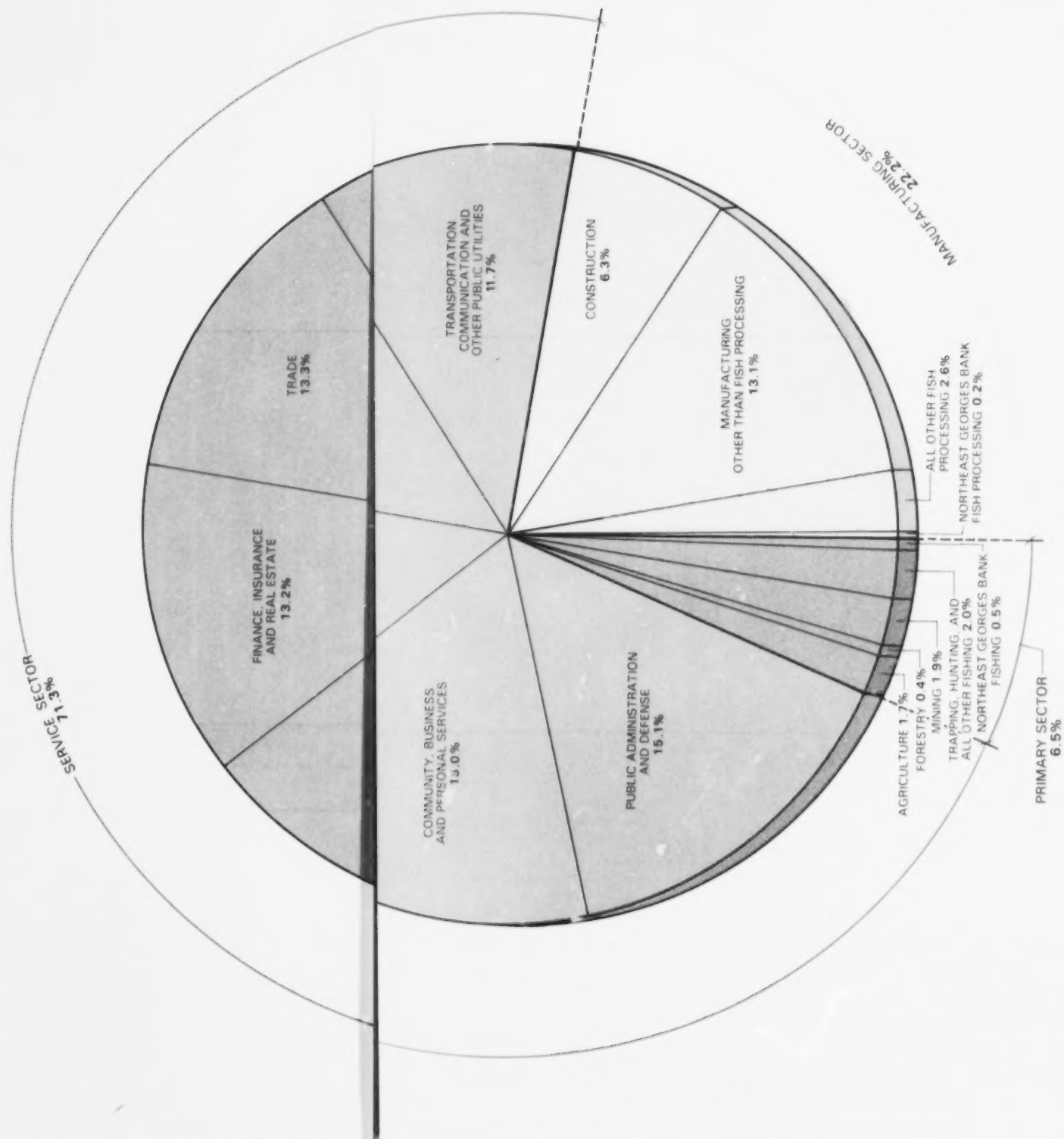


Figure 1

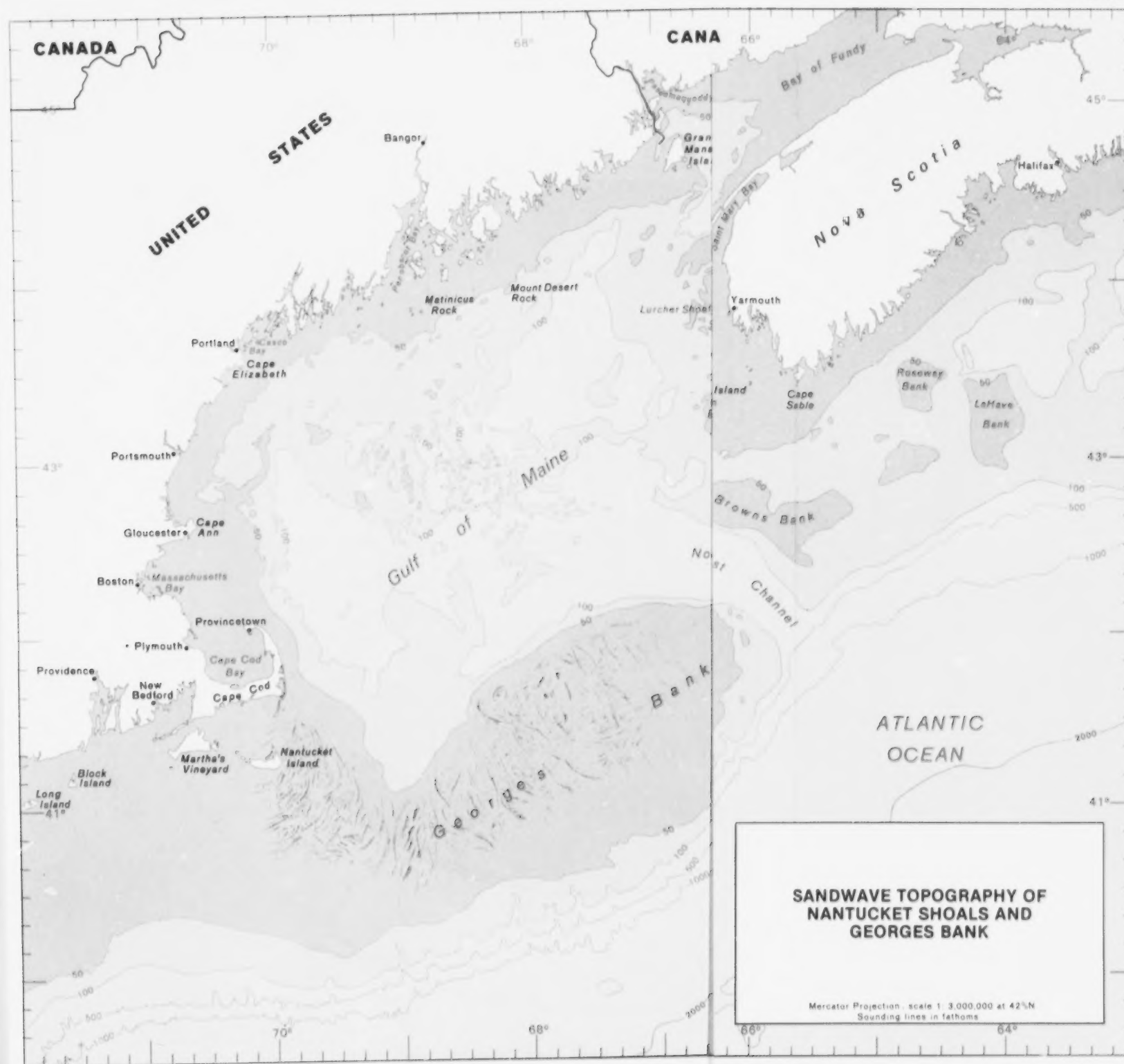
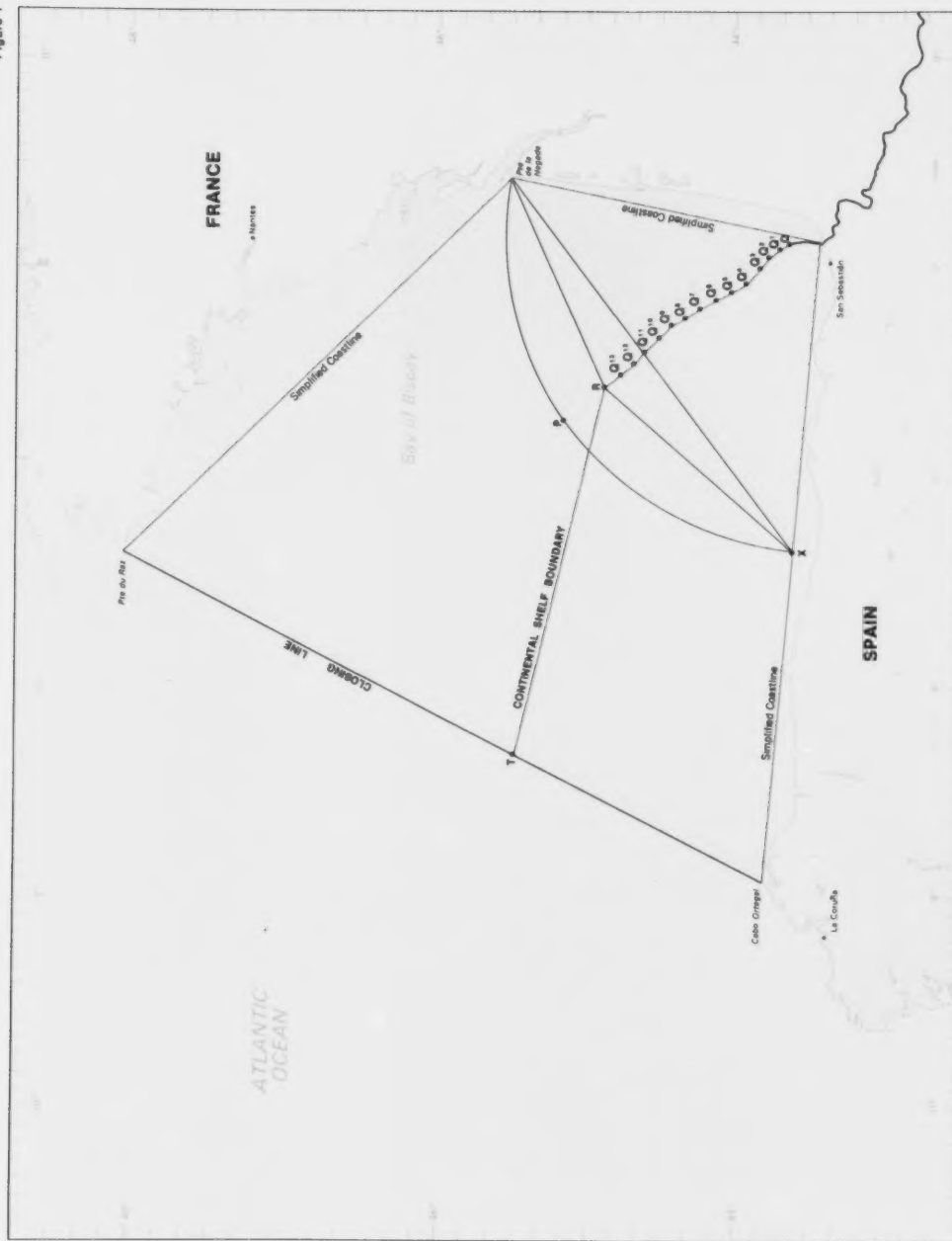
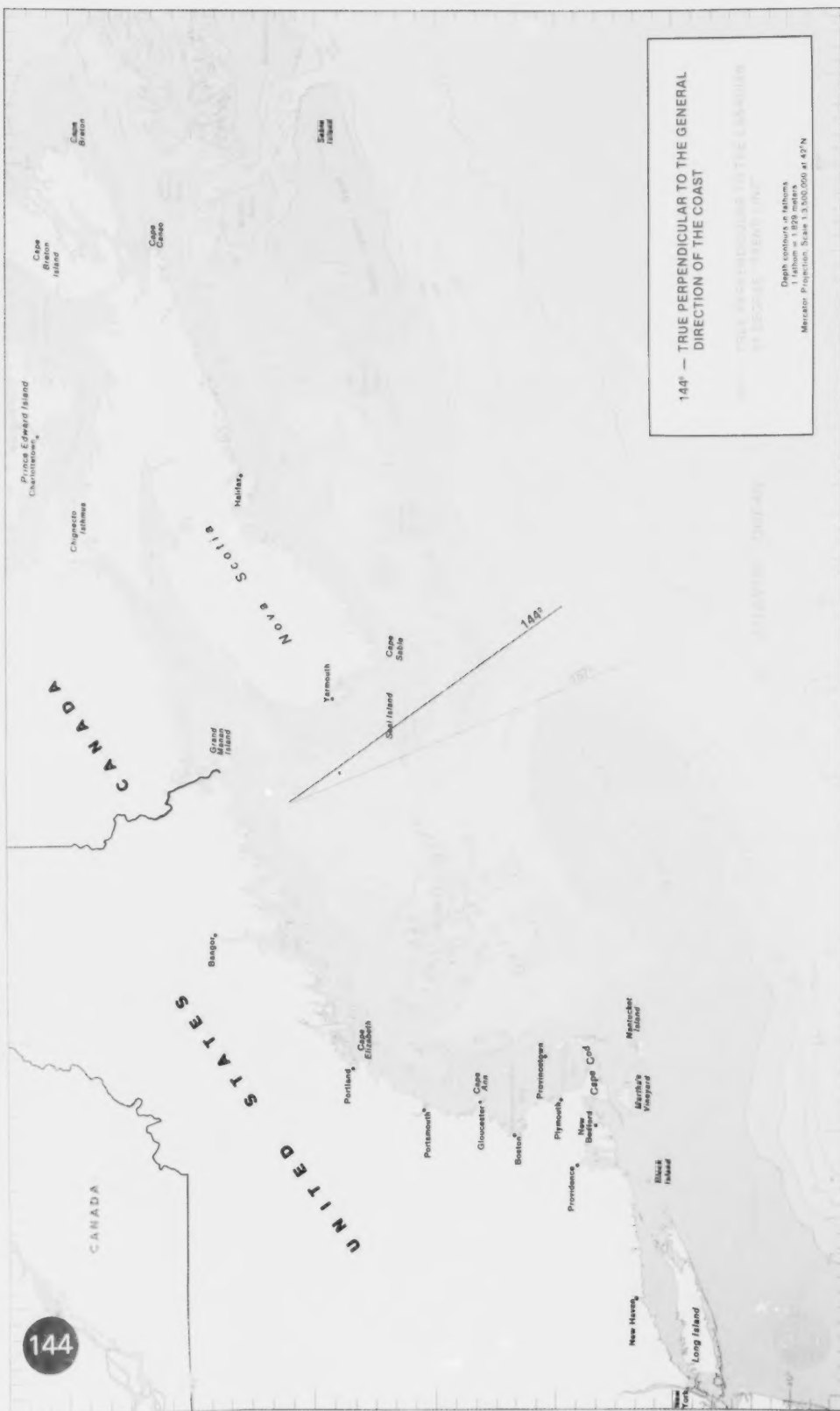
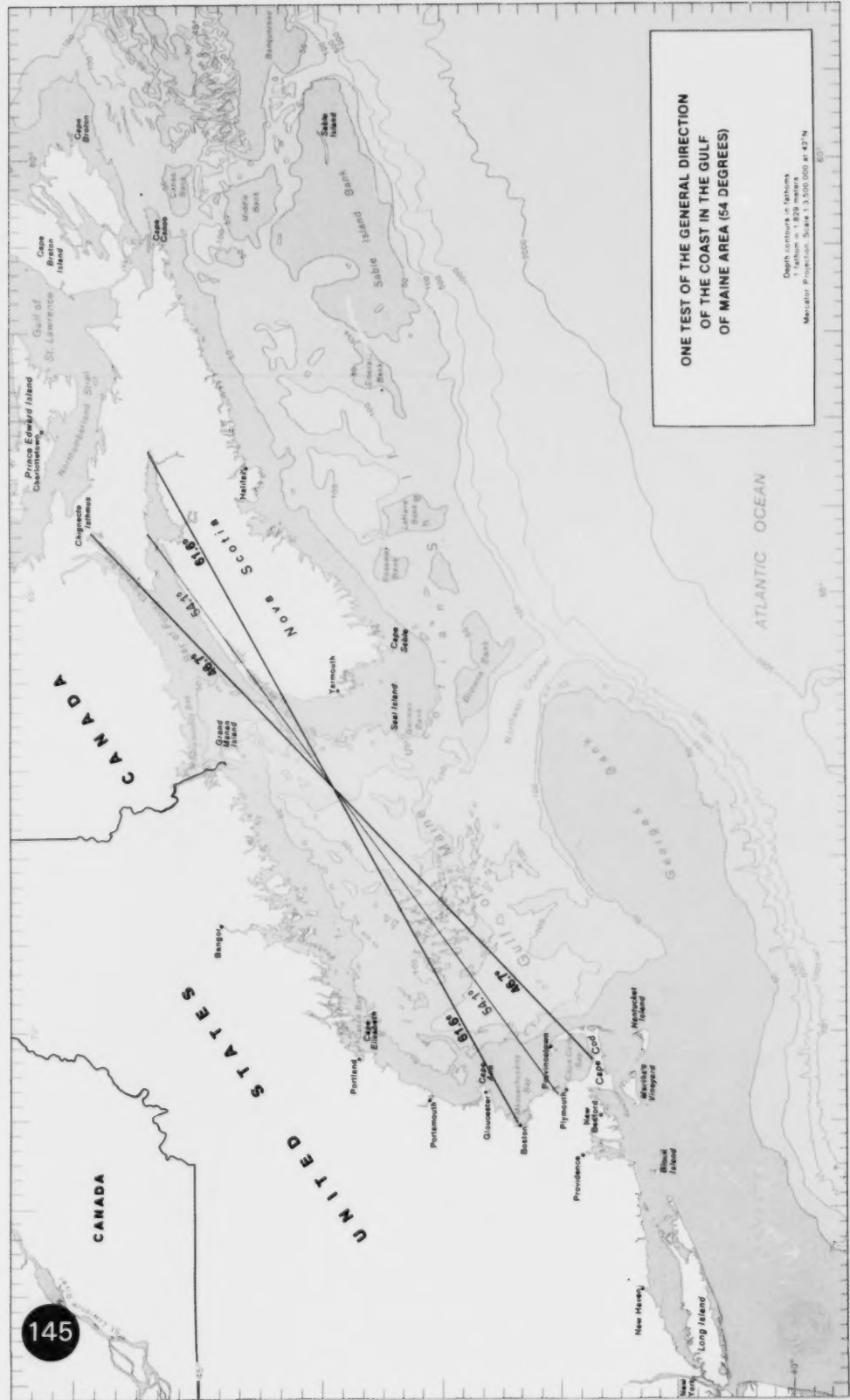


Figure 1



BAY OF BISCAY AGREED CONTINENTAL SHELF BOUNDARY WITH SIMPLIFIED COASTLINES AND OTHER CONSTRUCTION LINES

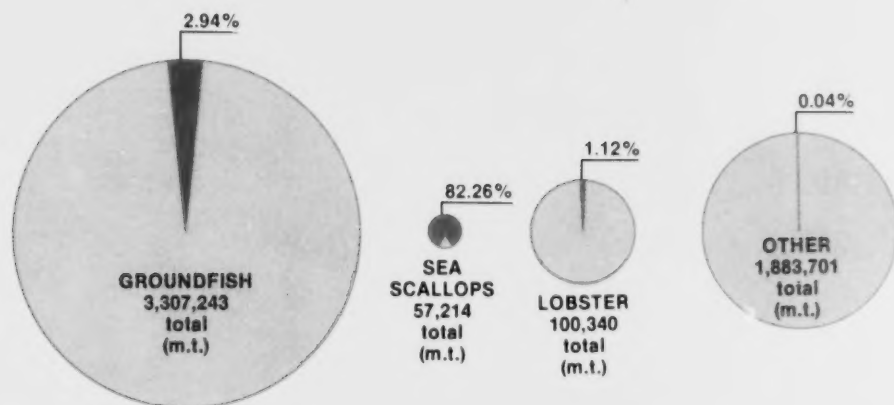




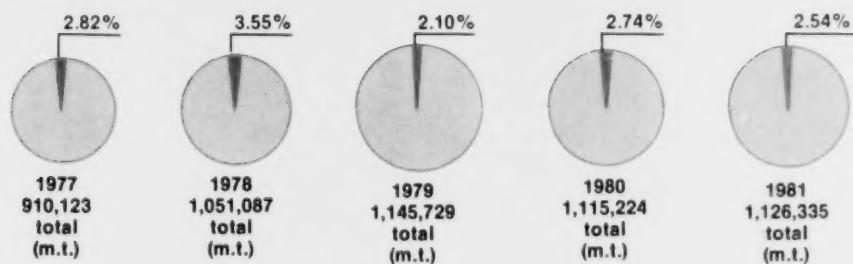
COMPARISON OF CANADIAN CATCH FROM THE NORTHEASTERN
PORTION OF GEORGES BANK WITH TOTAL
CANADIAN CATCH IN THE NORTHWEST ATLANTIC
FOR THE YEARS 1977—1981 (in metric tons)

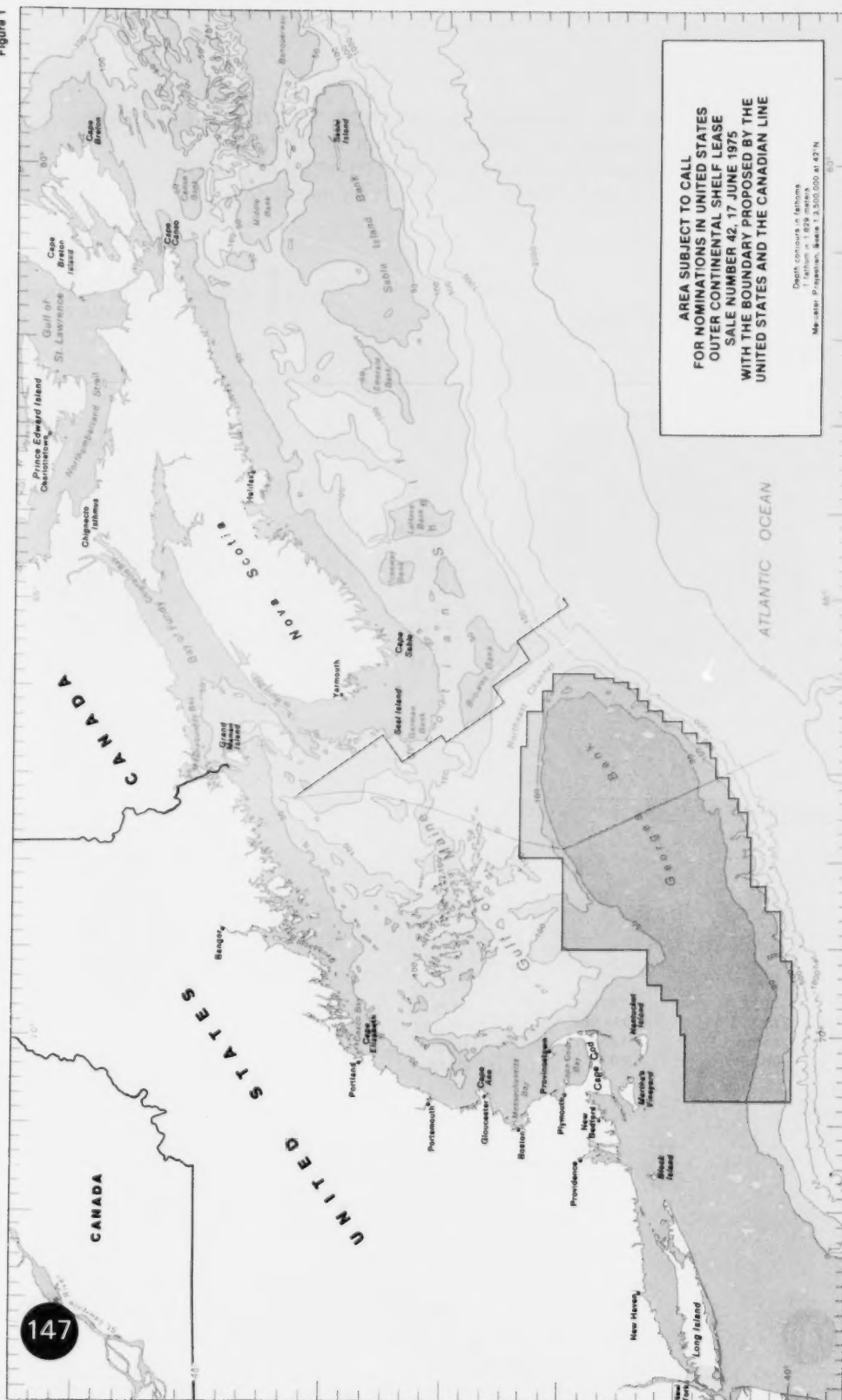
5 YEAR AVERAGE BY SPECIES

NORTHEASTERN PORTION
OF GEORGES BANK



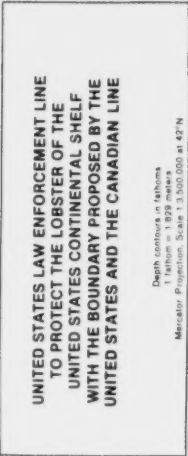
ALL SPECIES BY YEAR

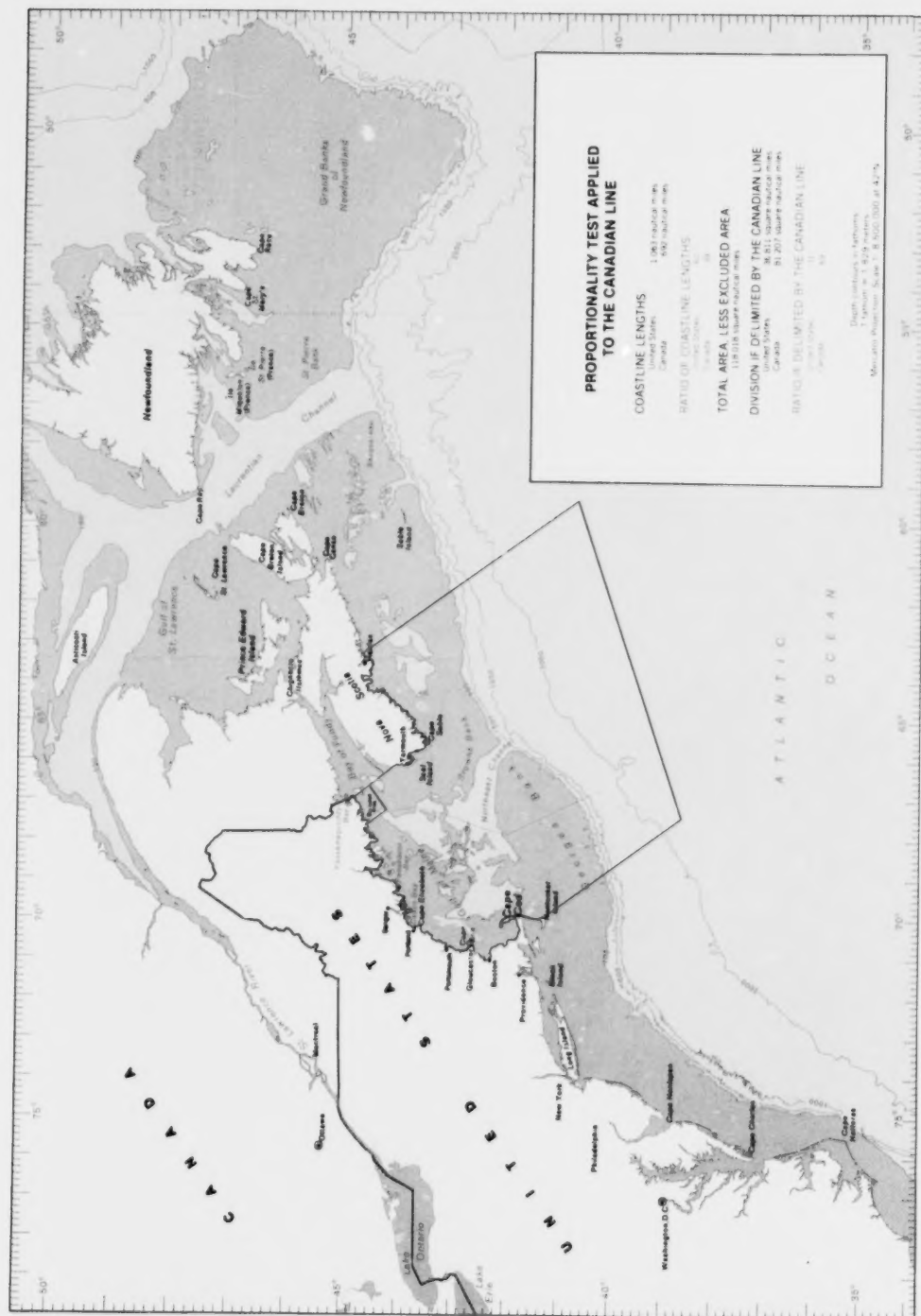




AREA SUBJECT TO CALL
FOR NOMINATIONS IN UNITED STATES
OUTER CONTINENTAL SHELF LEASE
SALE NUMBER 42, 17 JUNE 1975
WITH THE BOUNDARY PROPOSED BY THE
UNITED STATES AND THE CANADIAN LINE

Depth contours in fathoms
1 fathom is 1.829 meters
Merimeter Projection. Suse 1 2 500 000 at 42°N





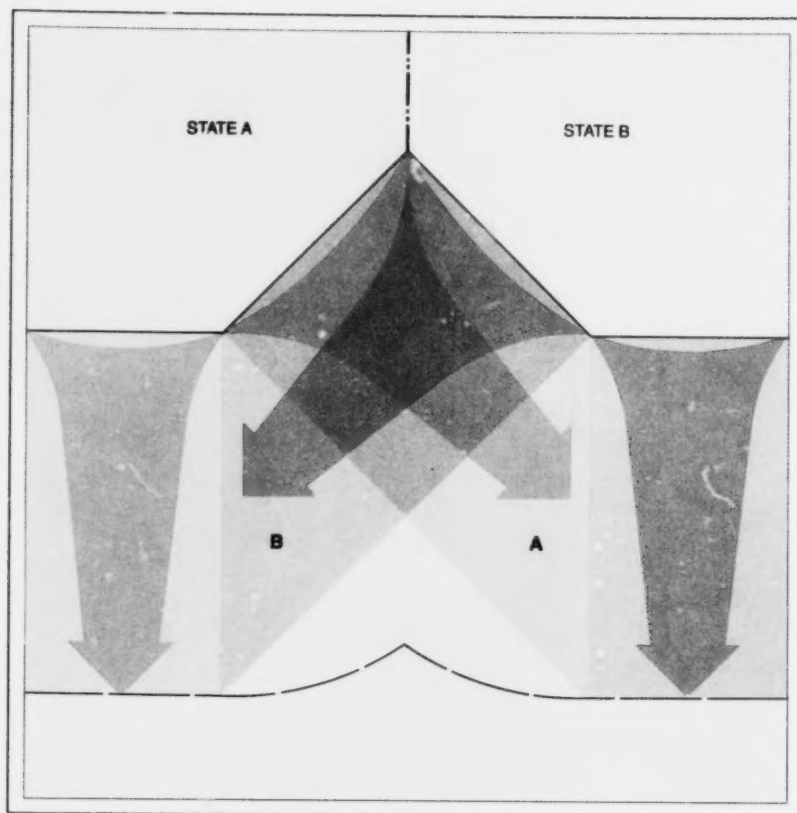


Figure 1

**Seaward
Extensions
Perpendicular to
Coastal Fronts in
the Manner
Depicted in Figure
31, United States
Memorial and
Figure 23, United
States Counter-
Memorial**



Seaward extensions of State A



Seaward extensions of State B



High seas



200-mile limit

Note: When the land boundary is situated in a coastal concavity, the attribution of jurisdiction on the basis of a perpendicular projection of coastal fronts systematically attributes sea areas to the more distant State.



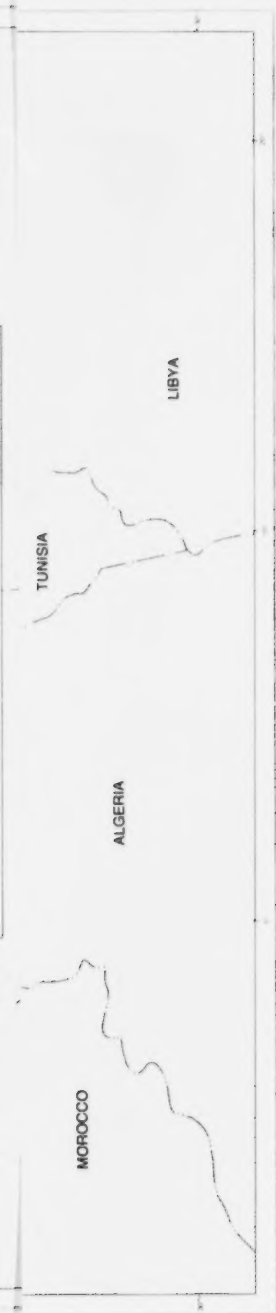


Figure 2

The Gulf of Maine
Area Compared to
the Western
Mediterranean

Inset Projection - Mercator
Inset Scale - 1:10,000,000 at 41°N
Basemap Projection - Mercator
Basemap Scale - 1:10,000,000 at 48°N

Figure 3
Comparisons of
Scale: Nova Scotia
and Other Areas

- A** Nova Scotia
- B** Southern United Kingdom
- C** Corsica and Sardinia
- D** Netherlands and Belgium
- E** Northern France
- F** Southern Italy

Note: Each of these regions is depicted in Mercator Projection at a scale of 1:5 400 000.

Nova Scotia Projection: Mercator
Nova Scotia Scale: 1:5 400 000 at 41°N
Europe Projection: Mercator
Europe Scale: 1:5 400 000 at 48°N





D



E



F

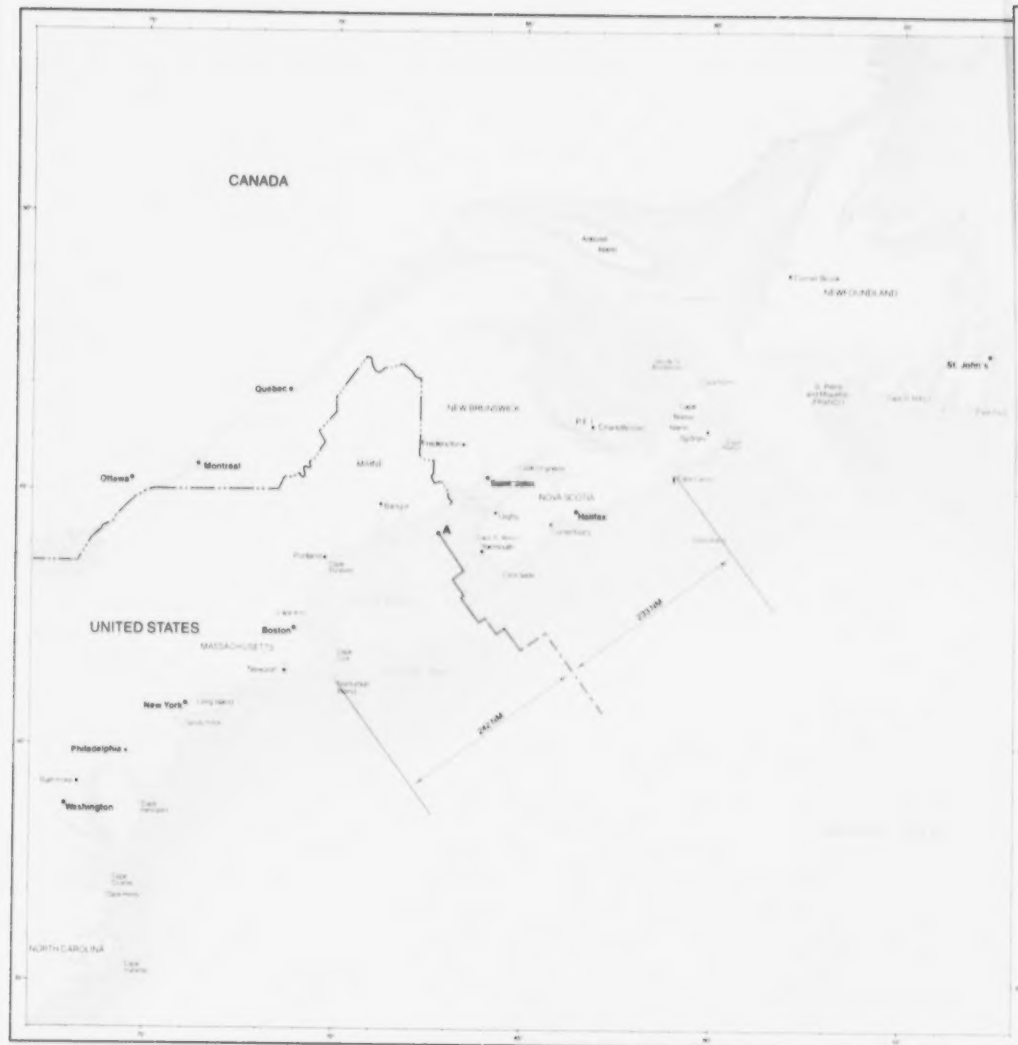


Figure 4
The United States
Defines the
"Relevant Area" on
the Basis of its 1982
Boundary Proposal

Depth in Meters
Projection: Mercator
Scale: 1:11,200,000 at 20° 30' N



Figure 5
The "Relevant Areas" in the United States Counter-Memorial

The "Gulf of Maine area" or "relevant area" for determining the relevant circumstances in this case

Proportionality test area

Area used to determine "relevant shares of combined United States/Canadian total catch on Georges Bank"

Area used to compare United States and Canadian management and research initiatives in ICNAF

Note: The United States Counter-Memorial states that the "relevant area" includes the Atlantic Ocean "to the limit of coastal-State jurisdiction" but does not indicate where this "limit" is. In this Figure, the seaward limit of the United States "relevant area" has been illustrated by reference to the method used by the United States to define the seaward limit of the proportionality test area adopted in the United States Memorial (p. 192, para. 312).

Source: U.S. Navy
Projection: Mercator
Scale: 1:1,250,000 at 37°N



Figure 7

The Opposite or Adjacent Relationship of the Coasts Relative to the Atlantic Region in the Anglo-French Continental Shelf Arbitration



Line determined by the Court of Arbitration in the 1977 Anglo-French Continental Shelf Award



Zone of Oppositeness

The application of the mathematical analysis of the opposite or adjacent relationship of coasts relative to the area to be delimited demonstrates that the relationship of the coasts of Cornwall and Finistère vis-à-vis the greater part of the area delimited by the Court in the Atlantic Region is predominantly adjacent.

Projection—Mercator
Scale—1:10 000 000 at 48°N

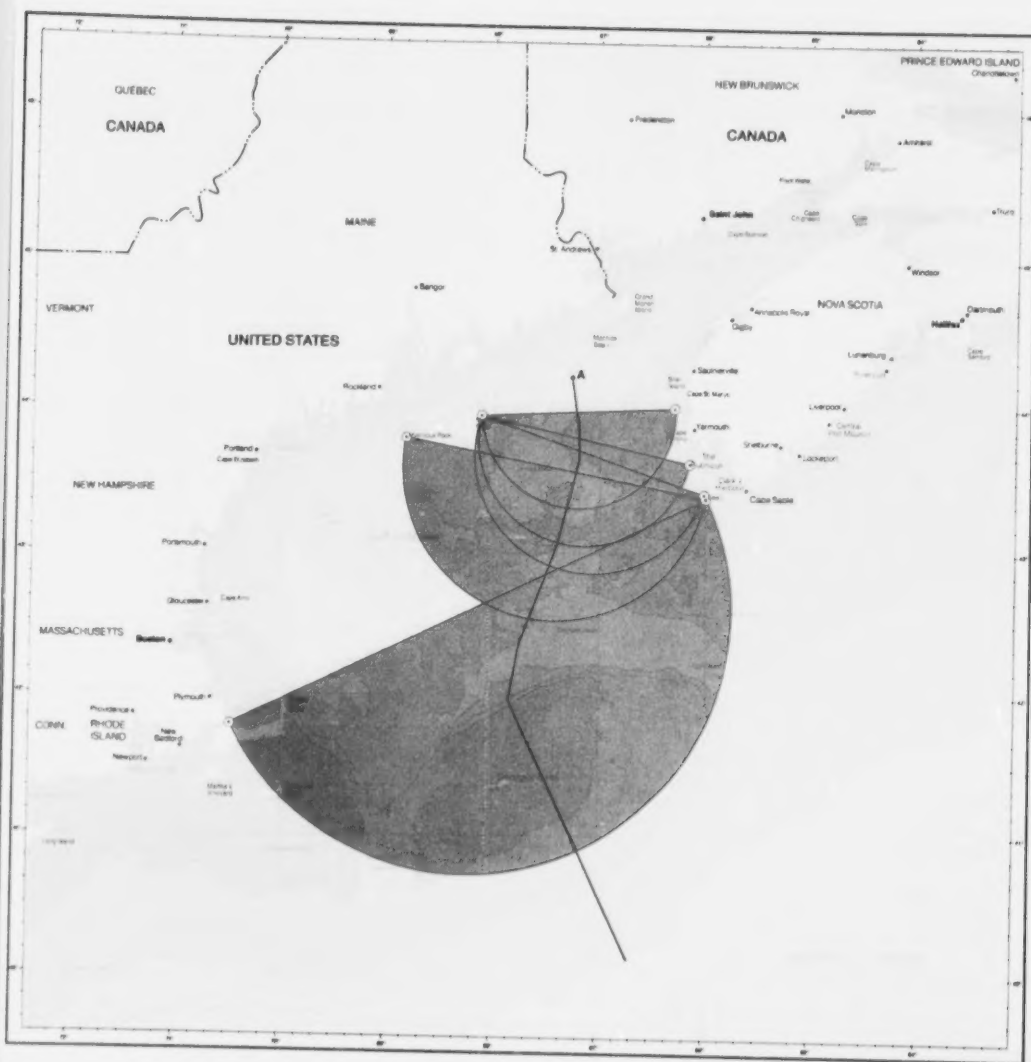


Figure 8

Mathematical Analysis of the Opposite or Adjacent Relationship of the Coasts Relative to the Area to be Delimited, as Applied to the Basepoints Used in the Construction of the Canadian Line

Basepoints used in the construction of the Canadian line

Zones of oppositeness

Coasting in Metric
Projection: Mercator
Scale: 1:5,260,000 at 47°N

Figure 9

The Proportionate or Disproportionate Effects of Particular Geographical Features on an Equidistance Boundary

A



Equidistance line drawn from the New Brunswick coast discounting the effect of Nova Scotia

B



Strict equidistance line



Equidistance line drawn from the New Brunswick coast

C



Equidistance line drawn from Cape Cod Canal discounting the effect of Cape Cod and its offlying islands

D



Strict equidistance line



Equidistance line drawn from Cape Cod Canal

Note: The ratio between the land area of peninsular Nova Scotia (13 177 square nautical miles) relative to the sea area it attracts on the basis of an equidistance line boundary (10 960 square nautical miles) is 1 : 0.8. The ratio between the land area of Cape Cod and Nantucket Island (346 square nautical miles) relative to the sea area they attract on the basis of an equidistance line boundary (2 906 square nautical miles) is 1 : 8.4.

Depths in Metres
Projection - Mercator
Scale - 1 10 000 000 at 41° N



A



C



B



D

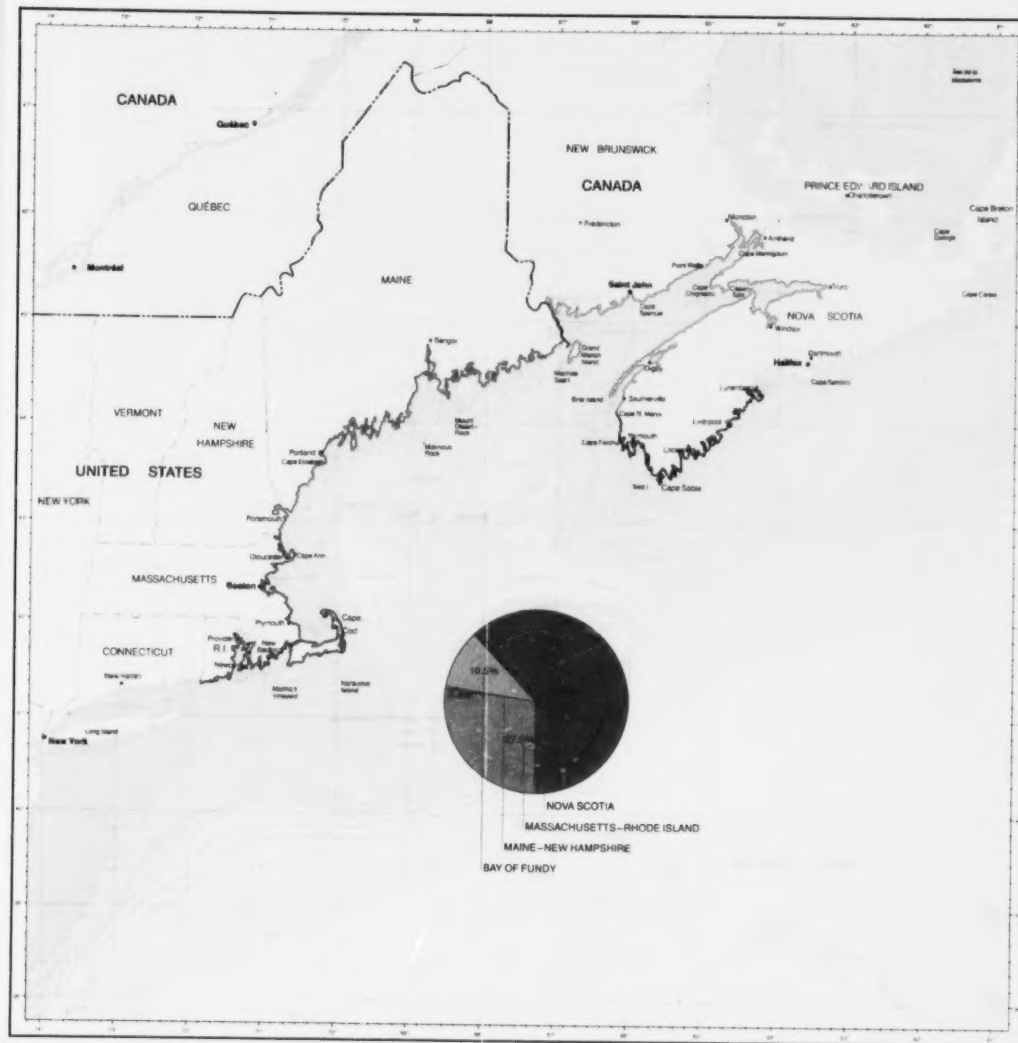


Figure 10

The Relevant Fishing Coasts: Georges Bank

- Nova Scotia coastal wing ports
- Bay of Fundy ports
- Maine-New Hampshire ports
- Massachusetts-Rhode Island coastal wing ports

Note: The percentages of total catch from Georges Bank by area of landing illustrated in the pie chart relate to the period 1969-1978. Values have been calculated by using 1978 Canadian offshore prices at Lunenburg. These data reflect the established fishing links between the relevant coasts and Georges Bank. Georges Bank is defined by reference to NAFO statistical units 52ej, 52eh, 52en and 52em. Catch data are taken from official statistics of Canada and the United States.

Depths in Metres
Projection: Mercator
Scale: 1:4 700 000 at 41°N

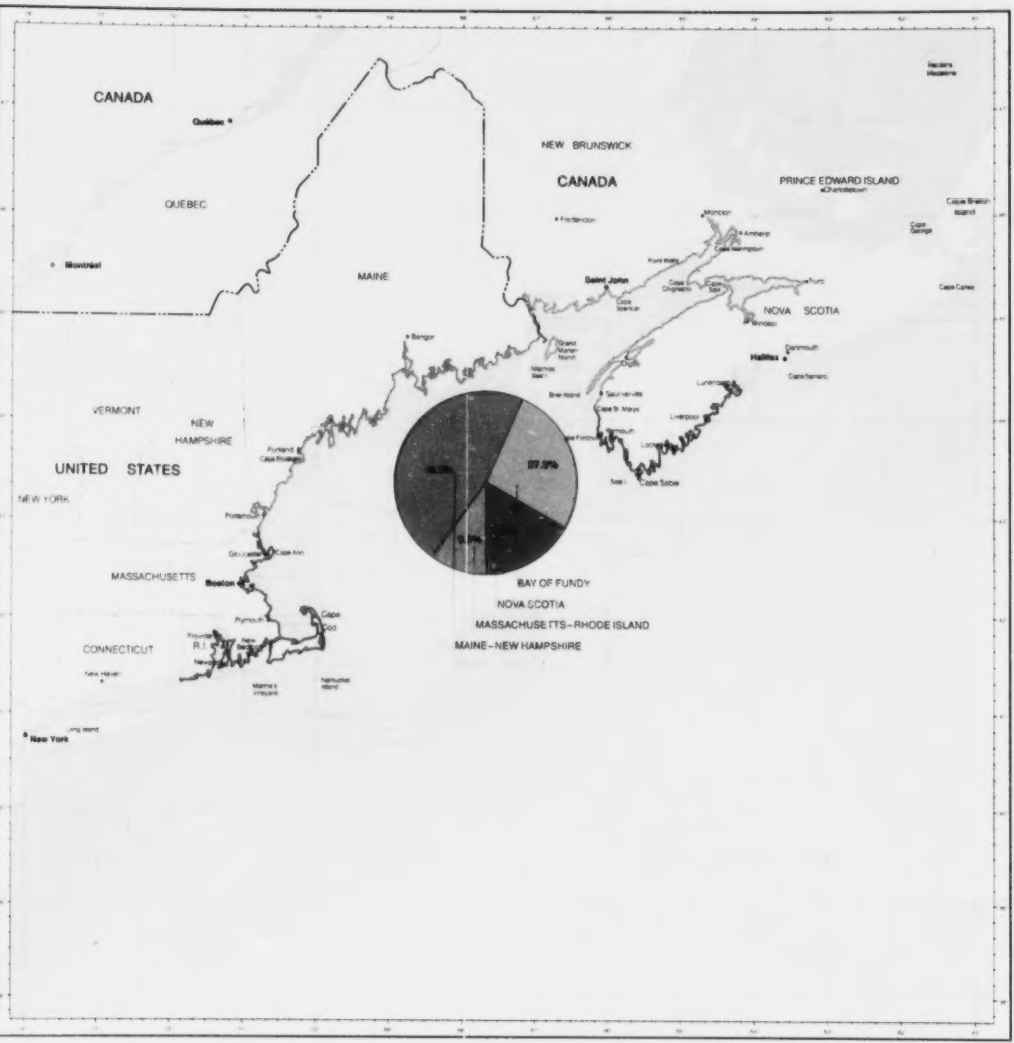


Figure 11
The Relevant
Fishing Coasts:
The Inner Area

- Nova Scotia coastal wing ports
- Bay of Fundy ports
- Maine-New Hampshire ports
- Massachusetts-Rhode Island coastal wing ports

Note: The percentages of total catch from the inner area by area of landing illustrated in the pie chart relate to the period 1969-1978. Values have been calculated by using 1978 Canadian offshore prices at Lunenburg. These data reflect the established fishing links between the relevant coasts and the inner area. The inner area has been defined by reference to NAFO subdivisions 5Yb, 5Yc, 5Yd, 5Ye, 5Yf, 4Xs, 4Xr and 4Xq. Catch data are taken from official statistics of Canada and the United States.

Depths in Metres
Projection - Mercator
Scale - 1:4 700 000 at 41°N

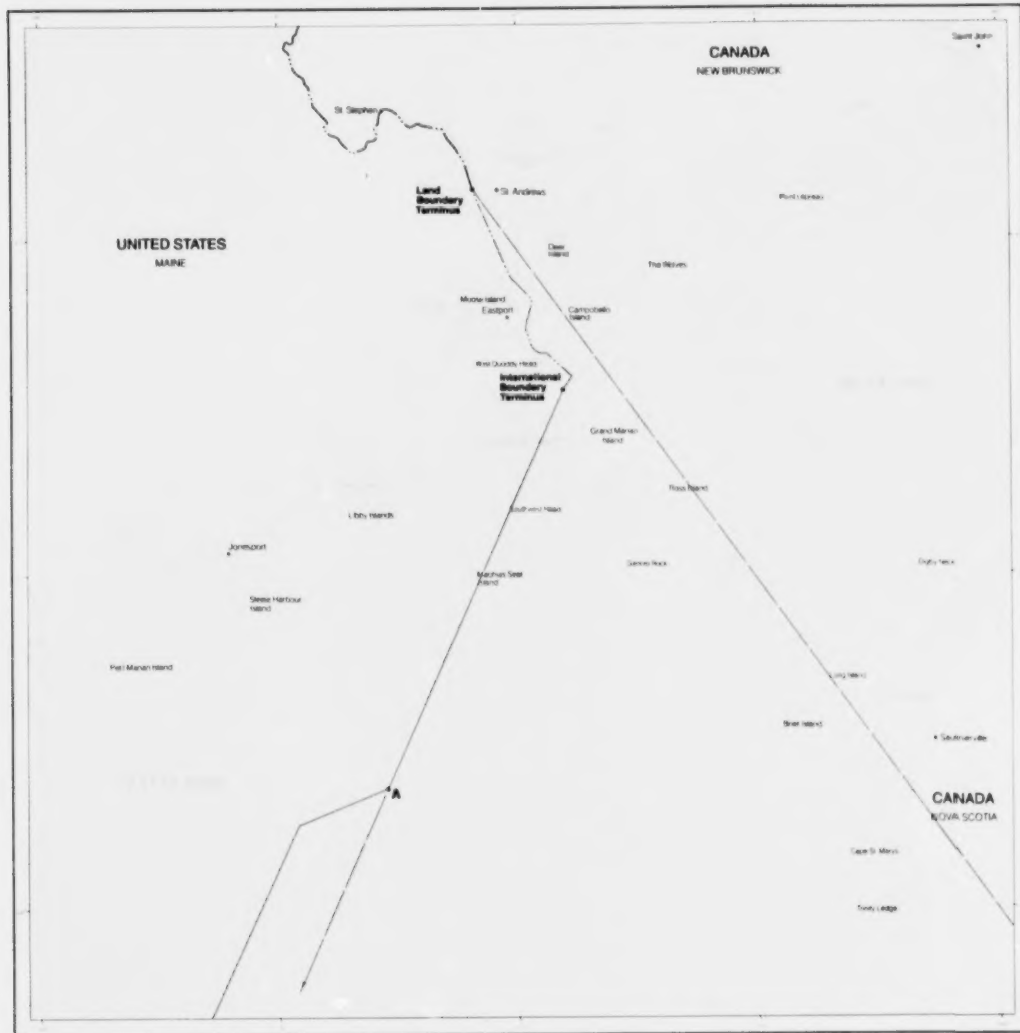


Figure 12

The Land Boundary Terminus, the Existing Maritime Boundary Terminus and the Agreed Point of Commencement (Point A) of the Single Maritime Boundary

Land boundary

Existing maritime boundary

Line of bearing between the international boundary terminus and Point A

The United States claim at 4 November 1976 from Point A

"Perpendicular to the general direction of the coast" as depicted in Figure 27, United States Memorial, transferred to the land boundary terminus

Projection: Mercator
Scale: 1:400,000 at 48°N



Figure 14
The Geological Links Between Nova Scotia and Georges Bank

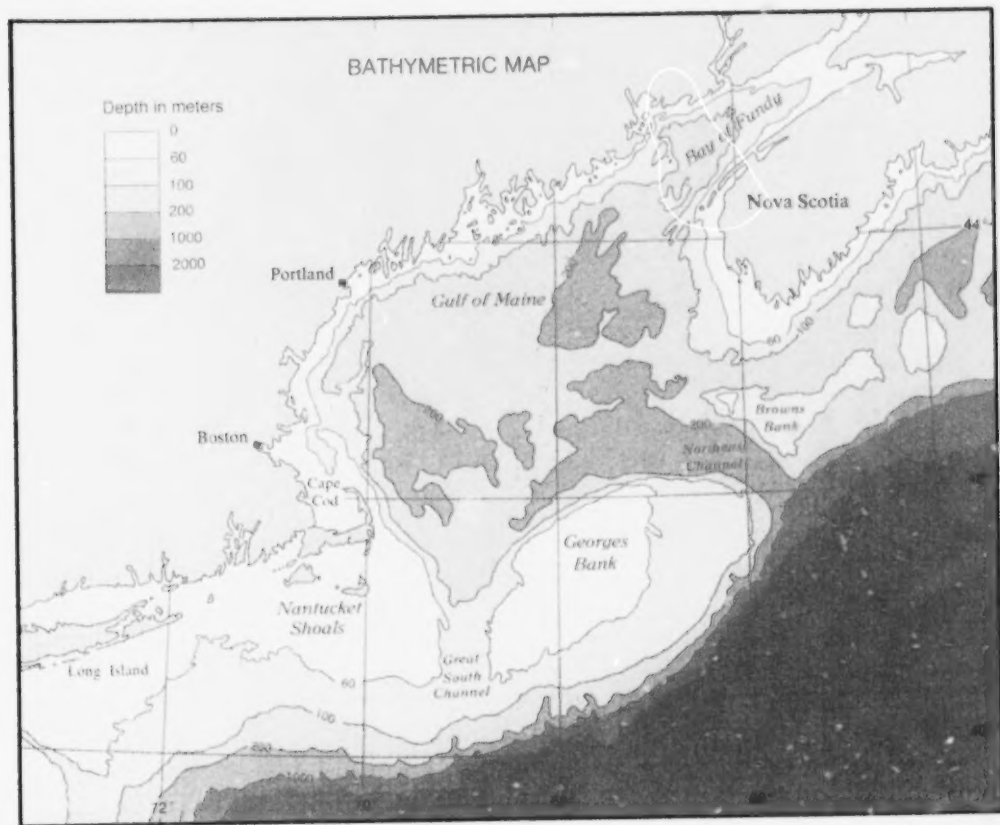
-  Basement trend lines derived from aeromagnetic, gravity, seismic and field observations
-  East Coast Magnetic Anomaly
-  Belt of seismicity

Source: Extrapolated from J. S. Schlee and K. D. Klitgord "Geologic Setting of the Georges Bank Basin," in P. A. Scholle and C. R. Wenkam, eds. *Geological Studies of the COST No. G-1 and G-2 Wells, United States North Atlantic Outer Continental Shelf*, United States Department of the Interior, Geological Survey Circular 861, 1982.
 J. D. Keppie, *Geological Map of the Province of Nova Scotia*, Halifax, Department of Mines and Energy, 1979.

Depths in Meters.
 Projection - Mercator.
 Scale - 1:4,700,000 at 41°N.

Figure 15

The American
Geographical
Society Bathymetric
Map of the Gulf of
Maine Area, 1974



AMERICAN GEOGRAPHICAL SOCIETY, 1974

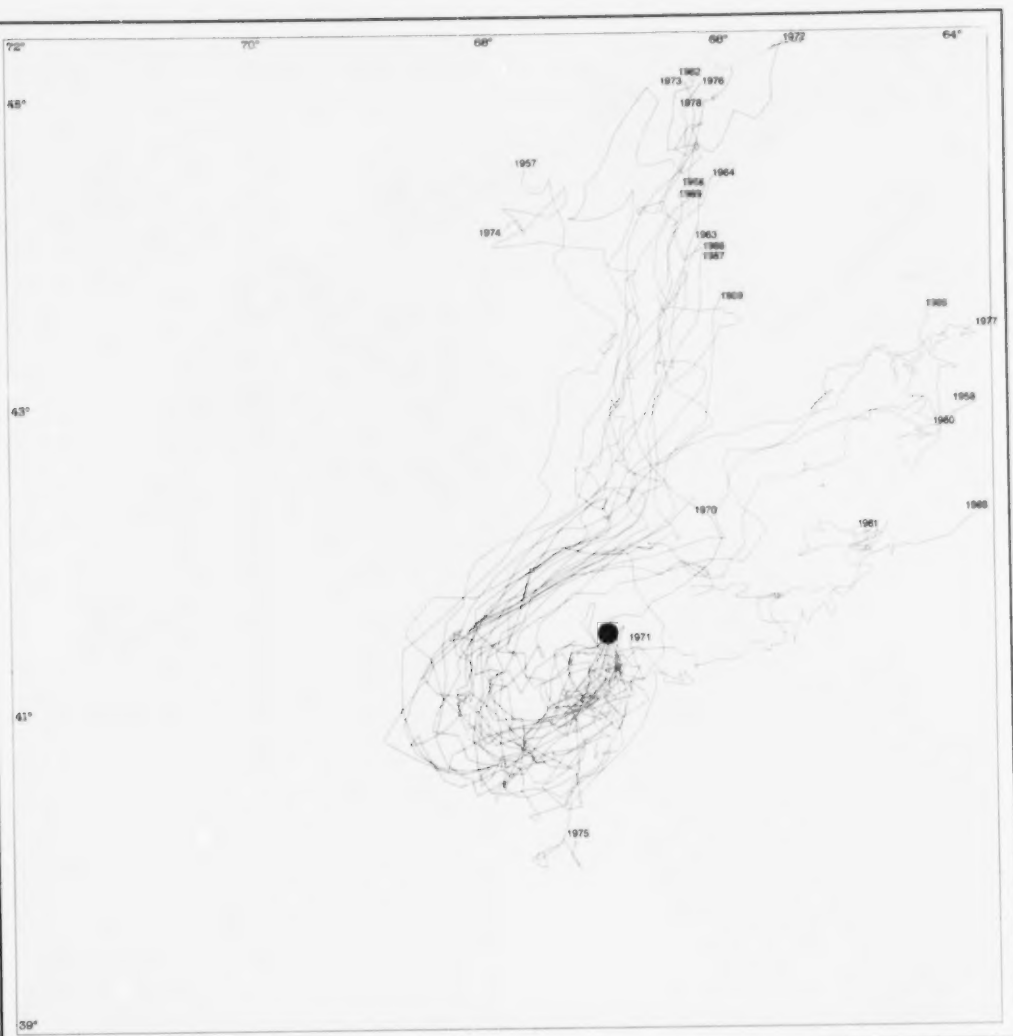


Figure 16

Projected Dispersion of Oil from a Spill on Georges Bank

-  20-day trajectory
-  40-day trajectory
-  80-day trajectory

A computer model using 23-year wind and current data was used to calculate these surface-oil trajectories. Oil spilled on Georges Bank in the warm seasons moves towards the Nova Scotia coast. In the cold seasons, it drifts out to sea, affecting neither the Canadian nor United States coasts.

Source: D. J. Lawrence and R. W. Trites, "Surface Oil Spill Trajectory Modelling for Georges and Browns Banks," *Canadian Technical Report of Hydrography and Ocean Sciences*, No. 29, 1983.

Projection: Mercator
Scale: 1:3,000,000 at 47°N

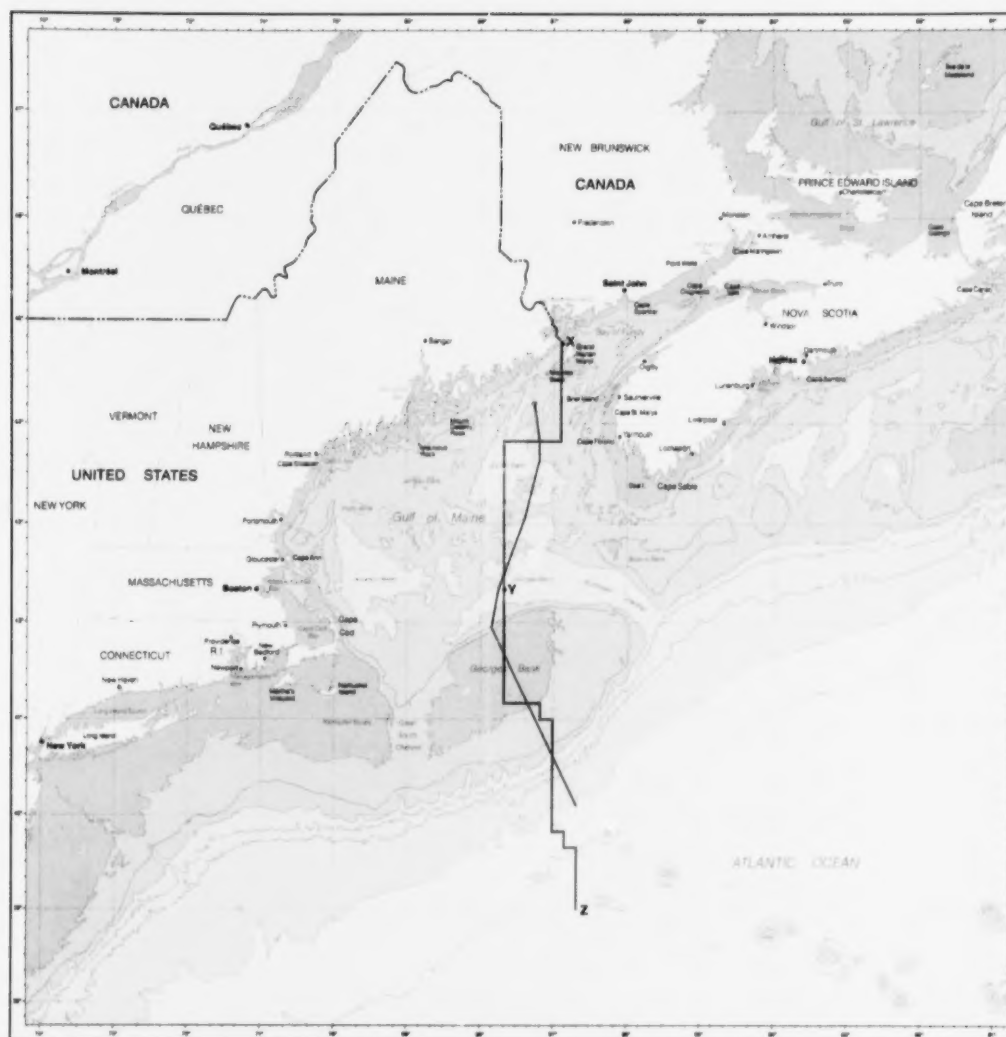


Figure 18
**NACFI/ICNAF/
 NAFO Dividing
 Lines and the
 Canadian Line**

The line illustrated here in red is a composite of the line used by the International Commission for the Northwest Atlantic Fisheries (ICNAF) and the Northwest Atlantic Fisheries Organization (NAFO) to divide subarea 5 from subarea 4 (segment X-Y), and of the line used by Canada and the United States to divide statistical units 5Zeh and 5Zen from statistical units 5Zej and 5Zem (segment Y-Z). These four statistical units are based on units first established by the North American Council on Fishery Investigations (NACFI) in 1931 to divide "natural fishing concentrations." While Canada does not admit the relevance of NACFI/ICNAF/NAFO dividing lines in the determination of the single maritime boundary in the Gulf of Maine area, it may be seen that the Canadian line is consistent with the divisions used by these organizations.

Depths in Meters
 Projection: Mercator
 Scale: 1:4,700,000 at 41°N

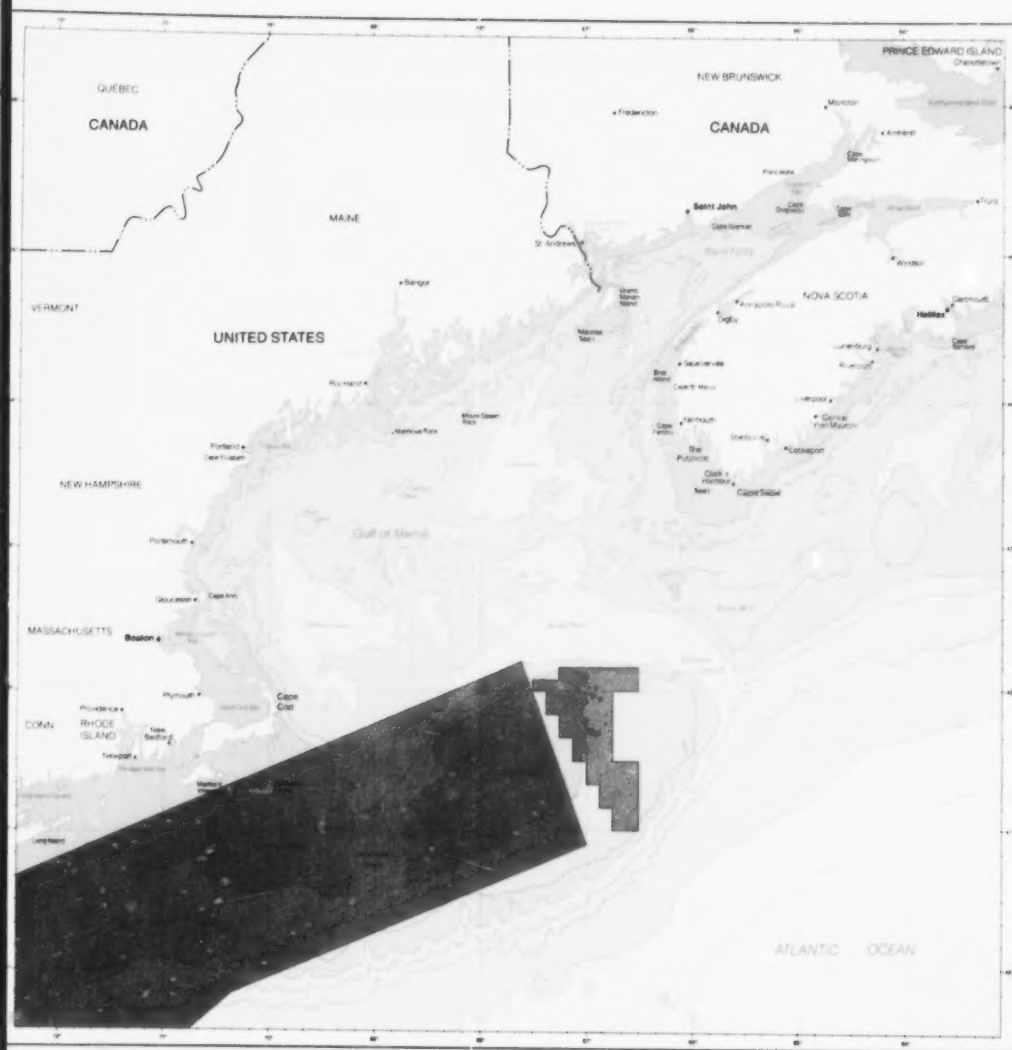


Figure 19

Licences and Permits Issued by Canada and the United States in 1965 and 1967 on the Basis of Equidistance

Area covered by Canadian exploratory licence 927 issued to Chevron in 1965

Area covered by United States geophysical permit E3-67 issued to a consortium headed by Chevron in 1967

Note: The coordinates describing the area within which the United States authorized geophysical surveys were obtained from the materials filed with the letter of 20 January 1983 from the Agent of the United States to the Registrar of the Court

Depths in Meters
Projection: Mercator
Scale: 1:3,240,000 at 41°N

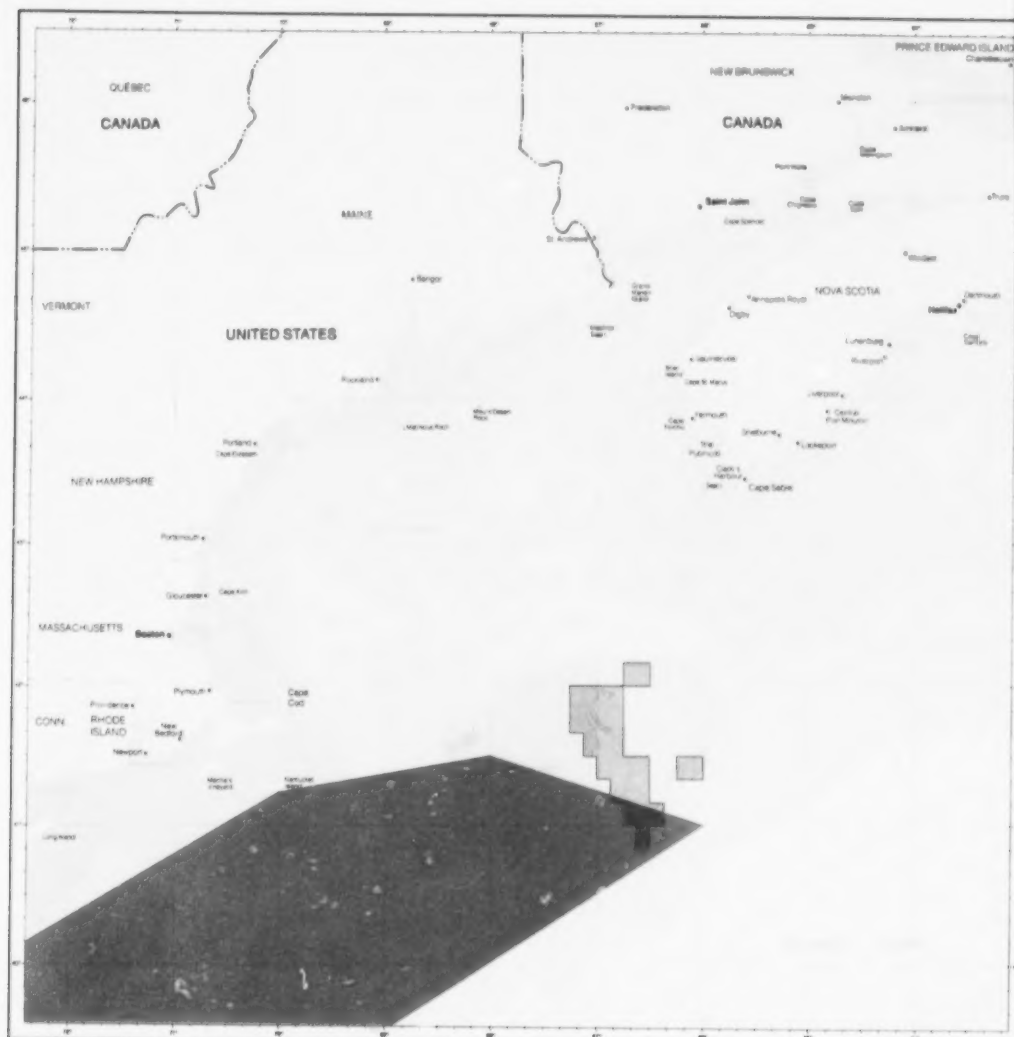


Figure 20

Licences and Permits Issued by Canada and the United States in 1969 on the Basis of Equidistance

Areas covered by Canadian exploratory licence 1283 issued to Chevron in 1969

Area covered by United States geophysical permit E2-69 issued to Chevron acting as agent for Digicon in 1969

Note: Documentation pertaining to United States permit E2-69 notes that "portions of two of the lines extend to the Canadian side of the BLM line". The coordinates describing the area within which the United States authorized geophysical surveys were obtained from the materials filed with the letter of 20 January 1983 from the Agent of the United States to the Registrar of the Court and from materials obtained from United States Government agencies.

Depths in Meters
Projection - Mercator
Scale - 1:1,000,000 at 50°N

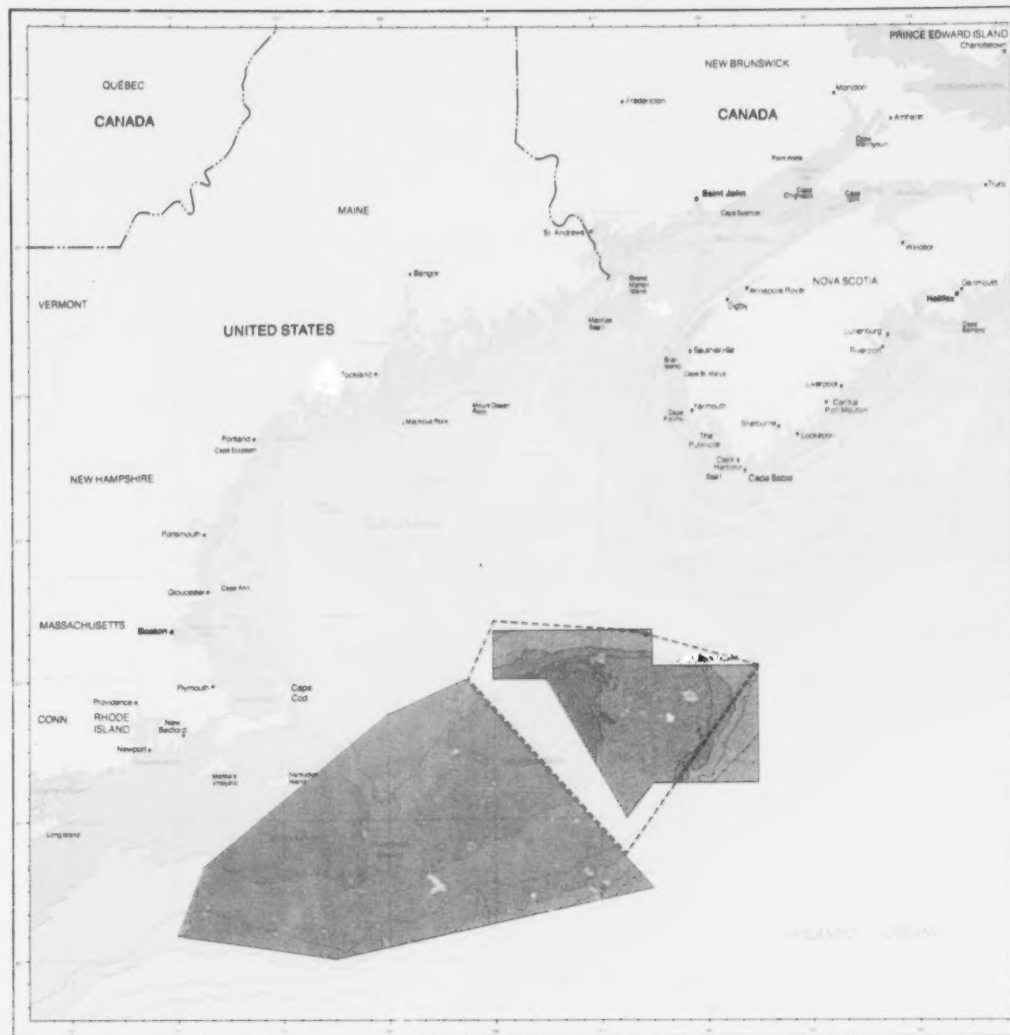


Figure 22

Licences and Permits Issued by Canada and the United States in 1975 on the Basis of Equidistance

Area covered by Canadian exploratory licence 2414 issued to Digicon in 1975

Area covered by United States geophysical permit E3-75 issued to Digicon in 1975

Extended area in which the United States subsequently authorized geophysical work by Digicon

Note: The coordinates describing the area within which the United States authorized geophysical surveys were obtained from the materials filed with the letter of 20 January 1983 from the Agent of the United States to the Registrar of the Court and from materials obtained from United States Government agencies

Depth in Meters
Projection: Mercator
Scale: 1:2,000,000 at 41°N



Figure 23
The Kennedy Line

This line was advanced by Senator Edward Kennedy in a proposed amendment to the 1979 Agreement on East Coast Fishery Resources. Pursuant to this proposed amendment, Canada would have exercised primary management responsibility for scallops east of the Kennedy line, instead of east of 68° 30' W as provided for in the Agreement.

Depths in Meters
Projection: Mercator
Scale: 1:4,700,000 at 41°N

Figure 25
Corrected Version
of Figure 1, Annex 4
to the United States
Counter-Memorial
Comparing Total
Catches of Canada
and the United
States on Georges
Bank, 1964-1981

Canadian percentage of catch
 United States percentage of catch

Note: In calculating its catches on Georges Bank, the United States included catches from ICNAF statistical units 5Zeg and 5Zeo, which are situated west of the Great South Channel and do not form part of Georges Bank. It also recorded scallop catches by "meat weight" while recording all other catches by "round weight". This Figure corrects these United States errors by using ICNAF statistical units 5Zej, 5Zem, 5Zeh and 5Zen to define Georges Bank, and round weight to record all landings.

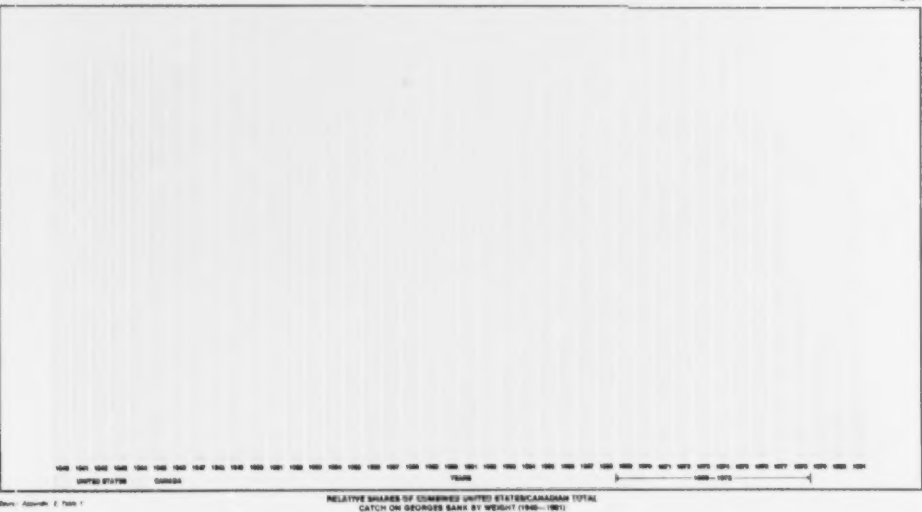
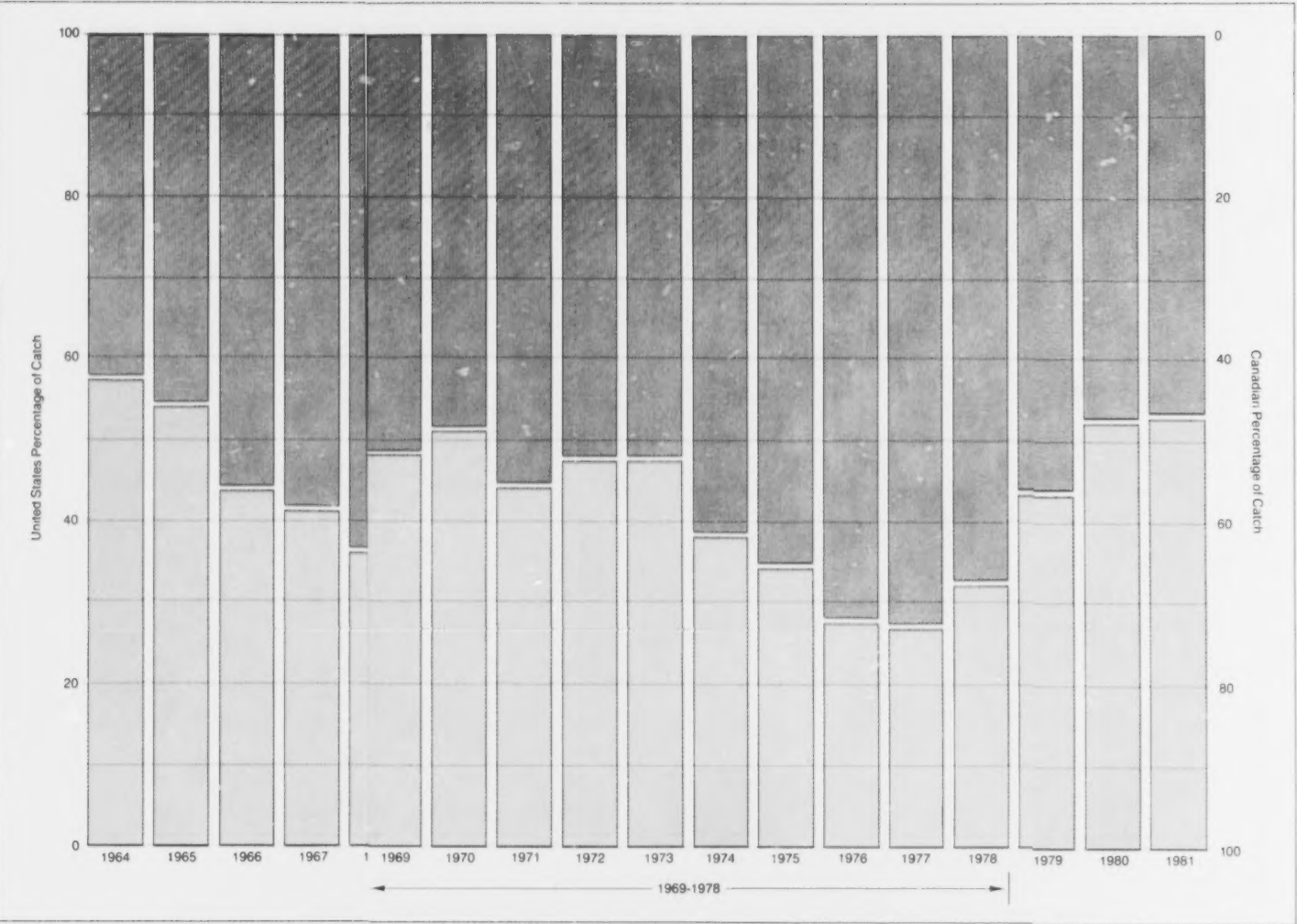
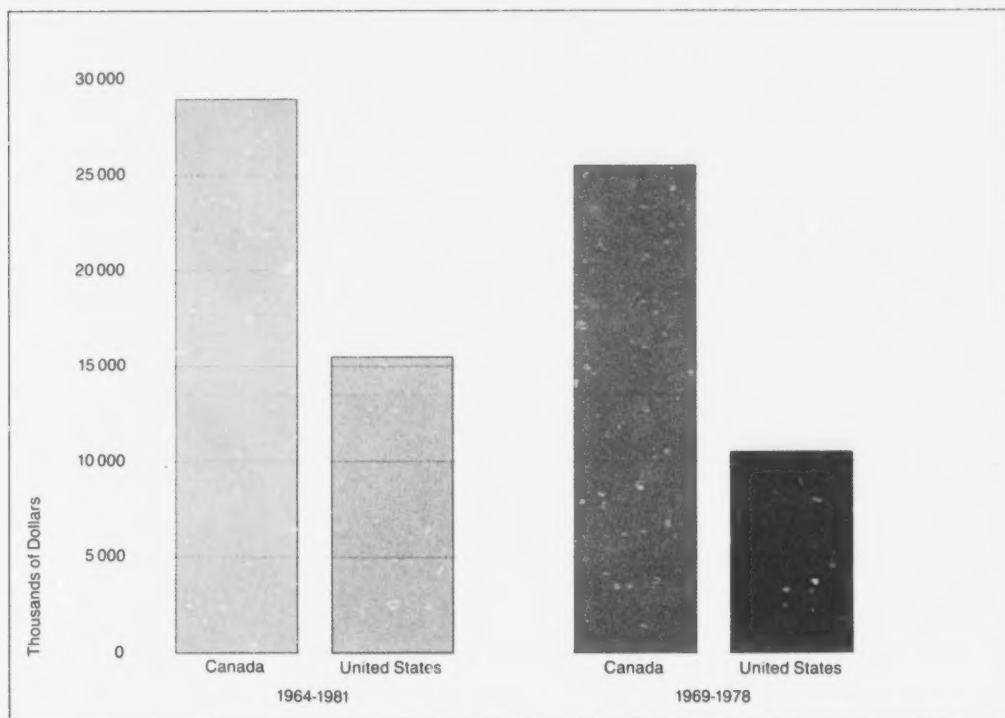
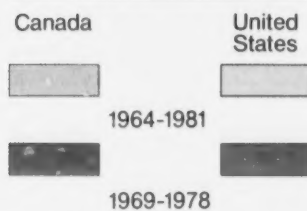


Figure 26

Comparison of
the Average Annual
Value of Total
Catches by Canada
and the United
States on the whole
of Georges Bank,
1964-1981 and
1969-1978



Note: Value is calculated using
Canadian offshore prices
recorded annually at
Lunenburg.

Figure 27
Relative Importance
of Basic Industries
in the Economies of
Nova Scotia,
Massachusetts and
Selected
Industrialized
States

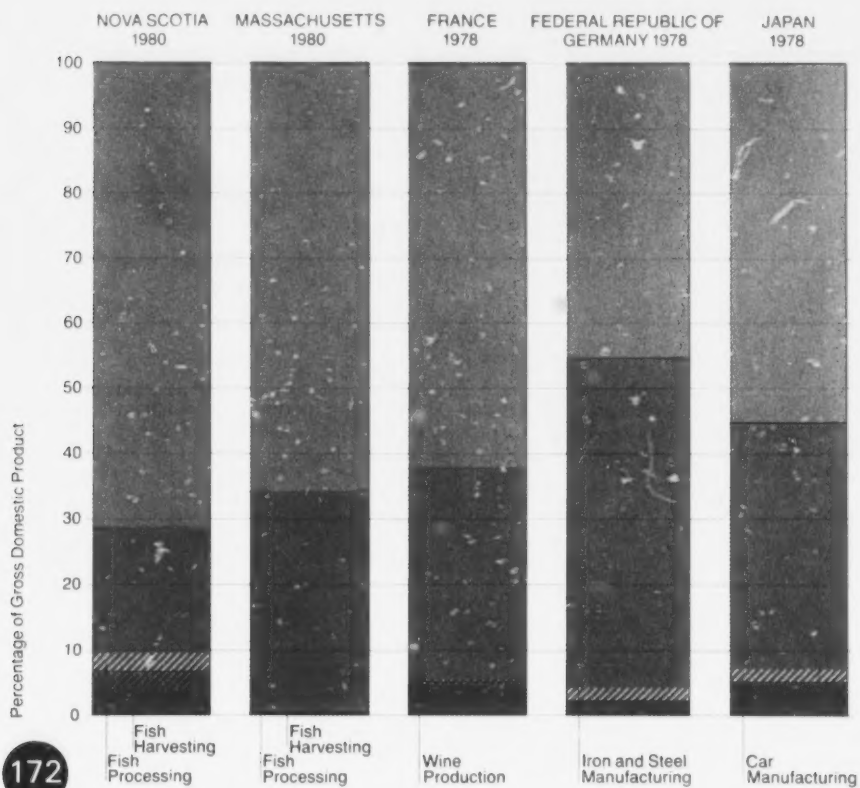
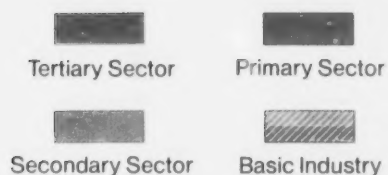


Figure 28

Comparison of the
Relative Importance
of the Georges
Bank Fisheries to
Nova Scotia and
Massachusetts,
1980



Nova Scotia



Massachusetts

Note: Relative importance is calculated by dividing income derived from Georges Bank fisheries by total provincial or state income. See Reply Annexes, Vol. II, Part I, Appendix I, Table 3.

Figure 29

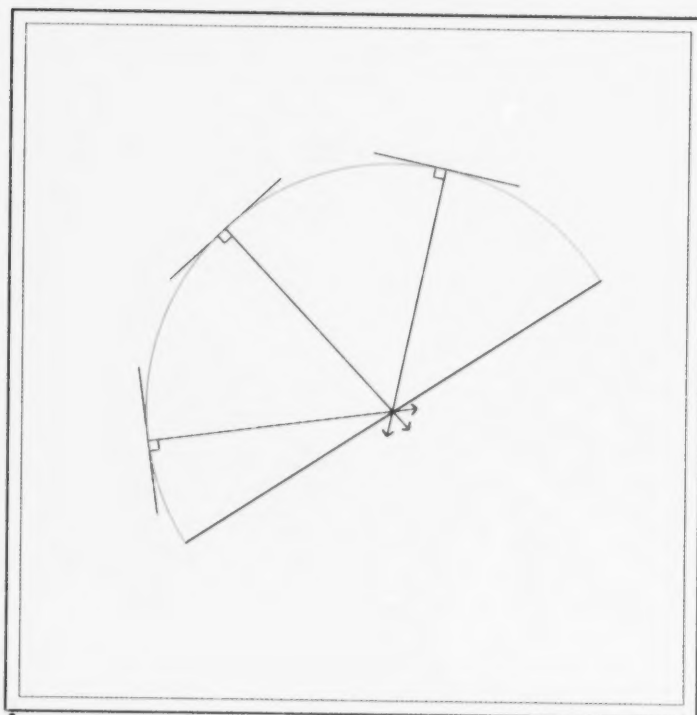
The Perpendicular Method Applied to the Depiction of "the deep concavity that is the Gulf of Maine" in Figure 21 of the United States Counter-Memorial

Perpendicular lines

Canadian line

Hypothetical Gulf of Maine closing line

Note: Ignoring the Bay of Fundy, the United States depicts the Gulf of Maine as a semi-circular concavity. The only means of applying the perpendicular method to a semi-circular concavity is by drawing lines perpendicular to tangents to the semi-circle. A perpendicular to a tangent to the semi-circle at Point A would divide the waters within the Gulf in proportion to the length of the Parties' coastlines, if, as proposed by the United States, a hypothetical closing line across the mouth of the Bay of Fundy were to be substituted for the actual Fundy coastline.



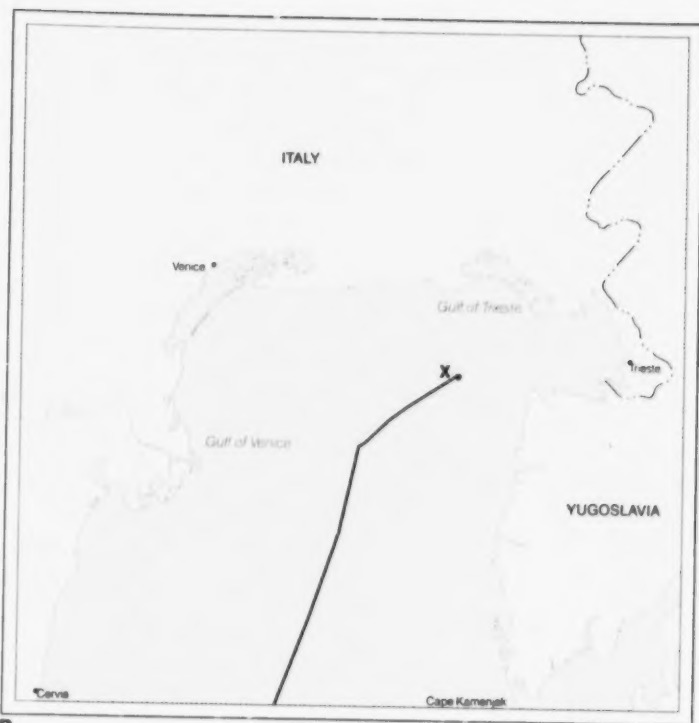
Projection - Mercator
Scale - 1:7 300 000 at 41°N



A

Figure 30

Equidistance Lines
in Deep Coastal
Concavities: The
Canadian Line in
the Gulf of Maine
Area and the
Continental Shelf
Boundary in the
Gulf of Venice



B

A
 Projection—Mercator
 Scale—1:7 300 000 at 41°N

B
 Projection—Mercator
 Scale—1:1 150 000

Figure 31

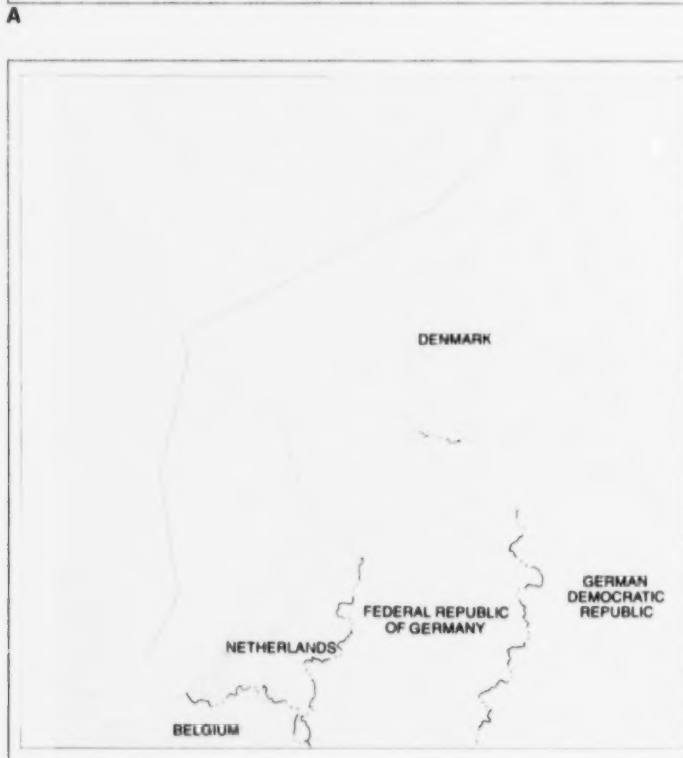
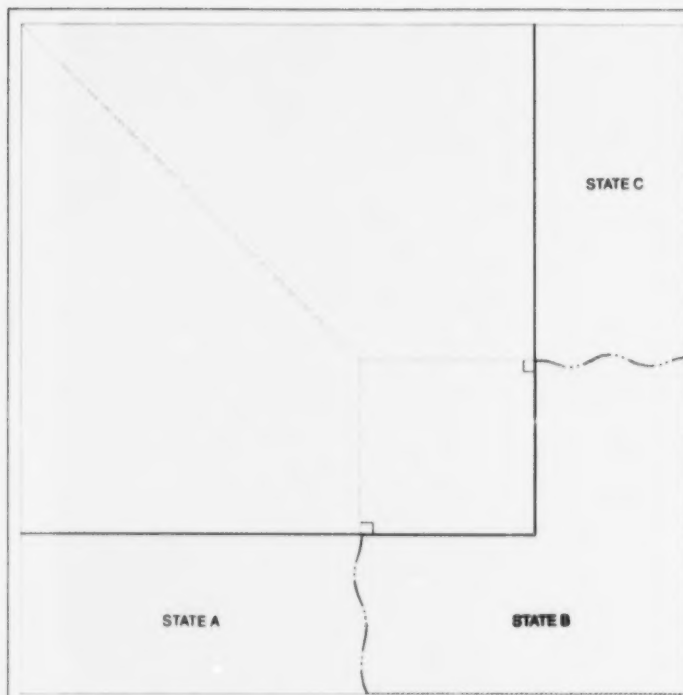
The Appropriateness of the Equidistance Method in a Coastal Concavity Depends on the Conjunction of Physical and Political Geography

A
Equidistance lines between three States where the land boundaries are located on the flanks of a two-sided concavity

B
Equidistance lines between the Netherlands, Federal Republic of Germany and Denmark

C
Equidistance line between two States where the land boundary is located in the corner of a two-sided concavity

D
Equidistance line between two hypothetical States in the North Sea where the land boundary is located in the corner of the concavity



B and D
Projection—Mercator
Scale—1:10 000 000 at 48°N



C



D



A

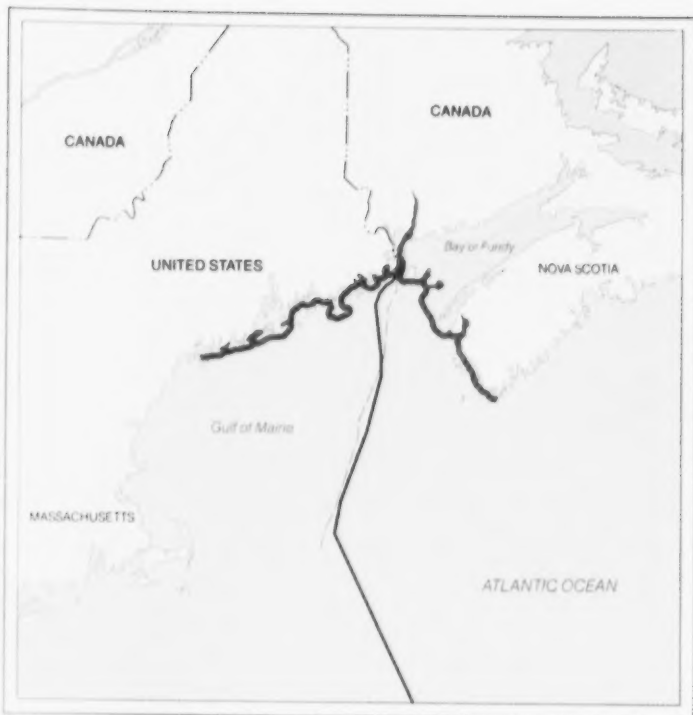
Figure 32

Equidistance Is Appropriate When the Land Boundary Terminus Between Two States Is Located in the Corner of a Concavity

A Equidistance line between two hypothetical States in the North Sea (figure 31D turned on its side)

B Coastline and equidistance line from maplet A superimposed on the Gulf of Maine area

Canadian line



B

A
Projection: Mercator
Scale: 1:10 000 000 at 48° N

B
Projection: Mercator
Scale: 1:7 300 000 at 41° N

Figure 33

Delimitation in the Bay of Biscay Compared to the Gulf of Maine Area

A Point Q3 at 200 metres, at the outer edge of Georges Bank, is at the same depth as Point Q3 on the Bay of Biscay boundary. Point R at 3600 metres, beyond the terminus of the Canadian line, is at the same depth as Point R on the Bay of Biscay boundary. As may be seen, Point T, at 5000 metres, the same depth as Point T on the Bay of

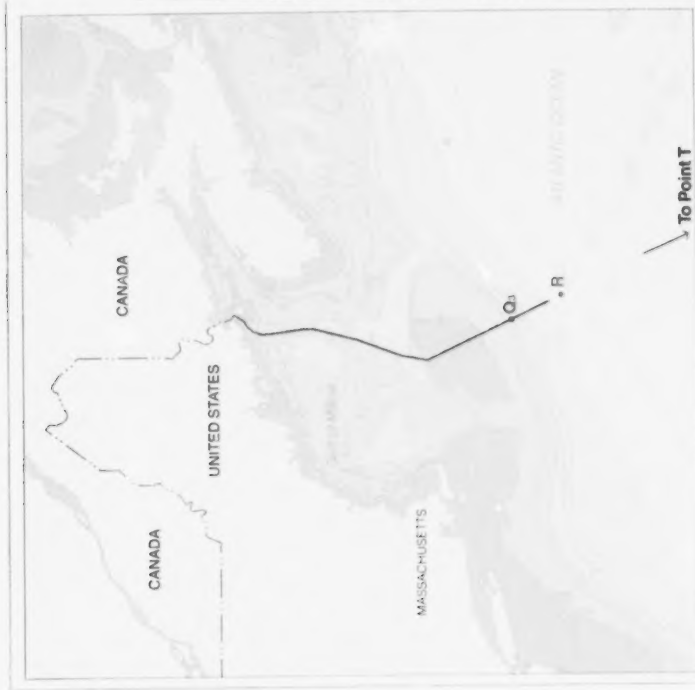
Biscay boundary, lies outside the area covered by the Canadian basemap of the Gulf of Maine Area.

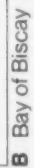
Note: The bathymetry used in this illustration represents the bathymetry of the Bay of Biscay area as it was known at the time of the negotiation of the continental shelf boundary.

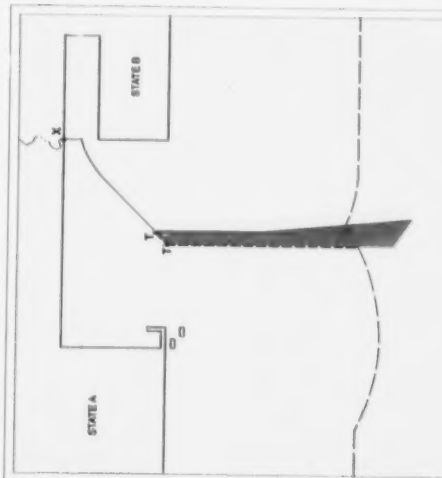
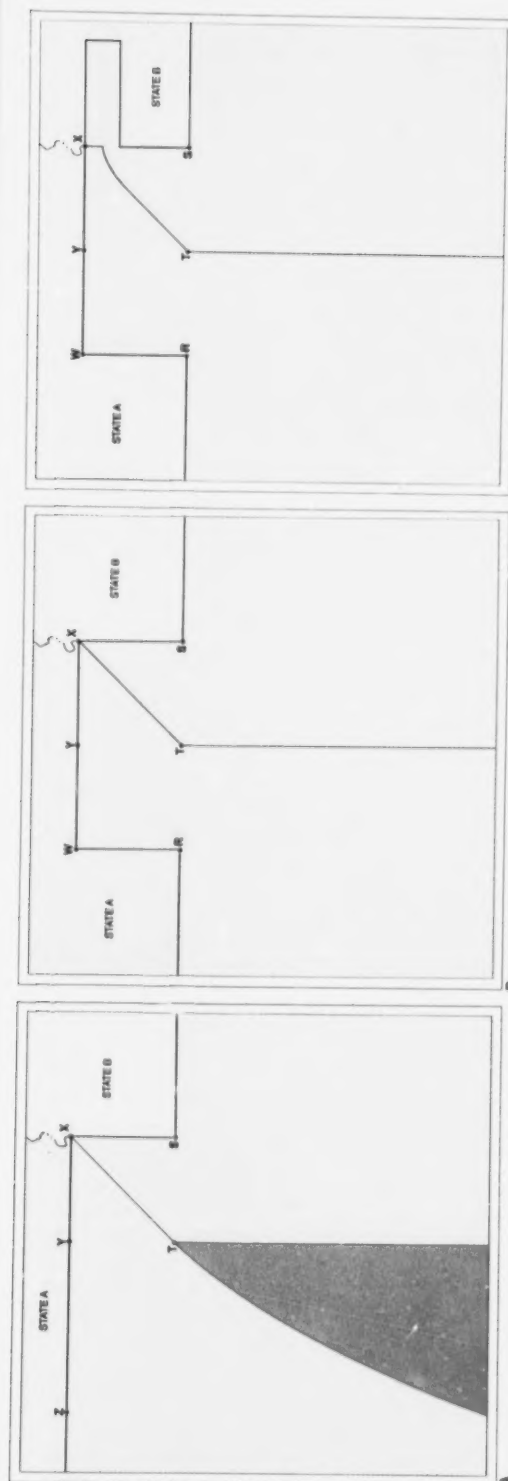
- B** Hypothetical closing line
- Agreed continental shelf boundary
- Joint exploitation zone
- Hypothetical equidistance

A Depths in Metres
Projection - Mercator
Scale - 1:10 000 000 at 41° N

B Depths in Metres
Projection - Mercator







- Figure 34**
The Influence of Convexities and Concavities on the Course of an Equidistance Line: The Cut-Off Effect
- A** The cut-off of a long recessive coast by a shorter convex coast in a two-sided concavity
 - B** The cut-off of the recessive coast is eliminated by the convex coast forming the third side of the concavity
 - C** A markedly concave major feature forming one corner of a two-sided concavity must be taken into account in assessing any cut-off effect
 - D** Incidental special features producing a marked coastal wing cut off the opposite coastal wing from sea areas appertaining to it
 - E** The Canadian line produces an equitable result in the Gulf of Maine area by discounting the effect of incidental special features
- Strict equidistance line
 Equidistance line discounting incidental special features
 Canadian line
 200-mile limit
 Area of cut-off

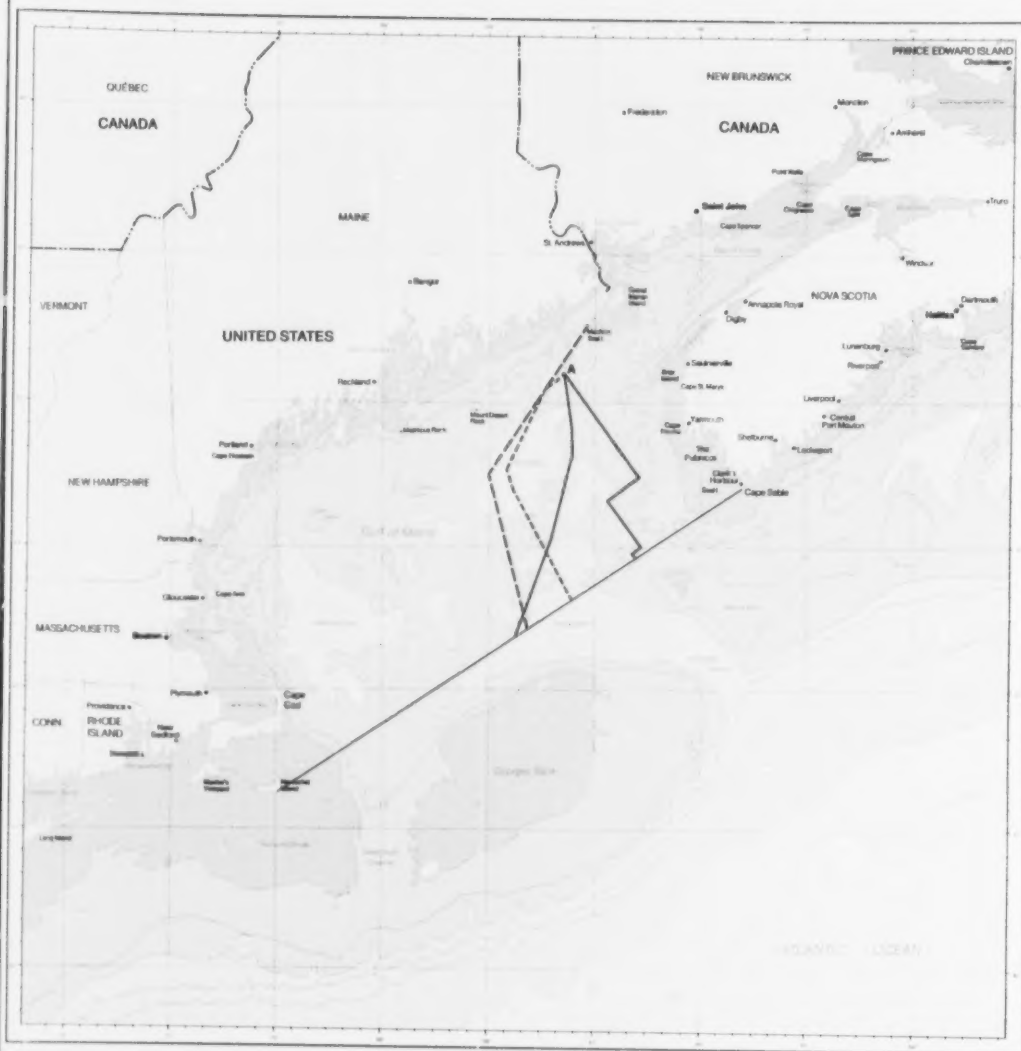


Figure 35
The Successive
United States Lines
in the Inner Area

1974 "Law Enforcement Line
to Protect the Lobster of the
United States Continental
Shelf"

1976 United States Northeast
Channel line

1982 United States "adjusted
perpendicular line"

Canadian line

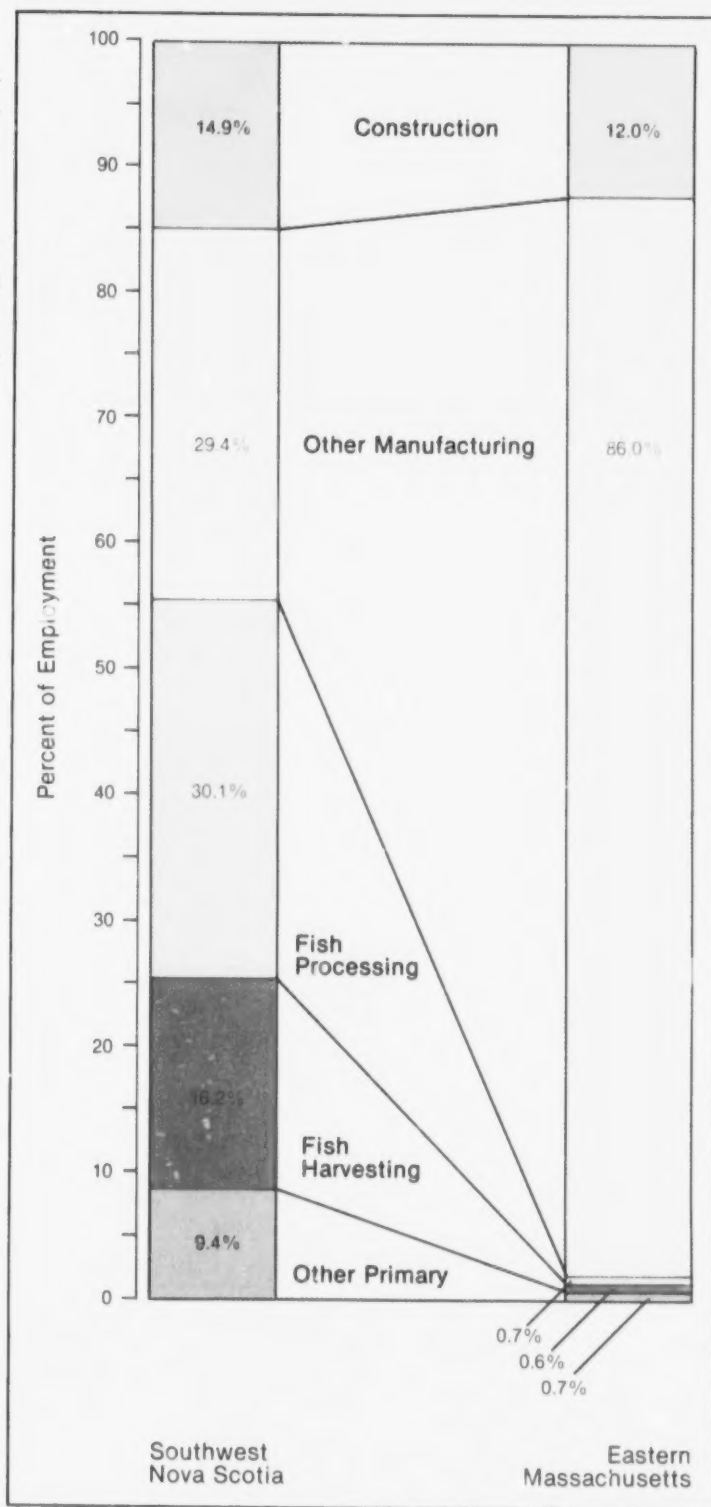
Hypothetical Gulf of Maine
closing line

Copyright in Maps
Produced by: Maritime
Scale: 1:3,000,000 at 41°N

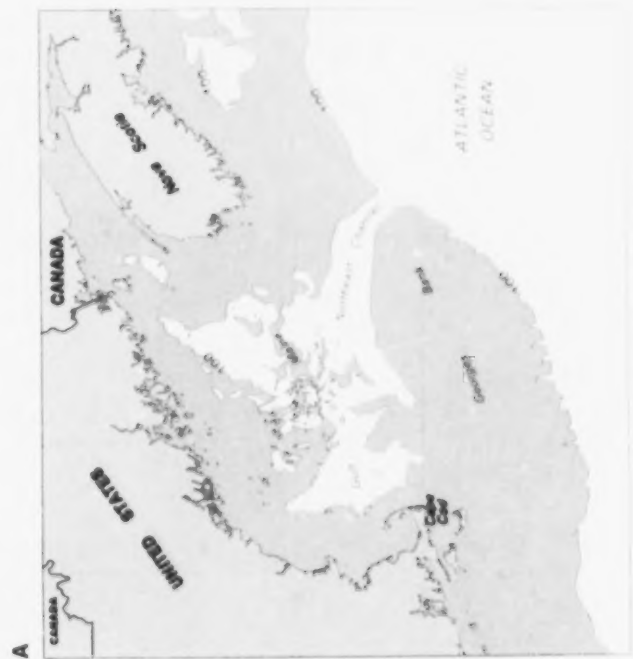


Figure 6

Comparison of Employment Opportunities in the Primary and Secondary Sectors of Southwest Nova Scotia and Eastern Massachusetts



DEPICTIONS OF THE CONTINENTAL SHELF DEFINED AS THE 100-FATHOM-DEPTH
CONTOUR FROM 1945 UNTIL THE FIRST UNITED NATIONS CONFERENCE ON THE
LAW OF THE SEA



The 100-fathom-depth contour in
the Gulf of Maine and adjacent area

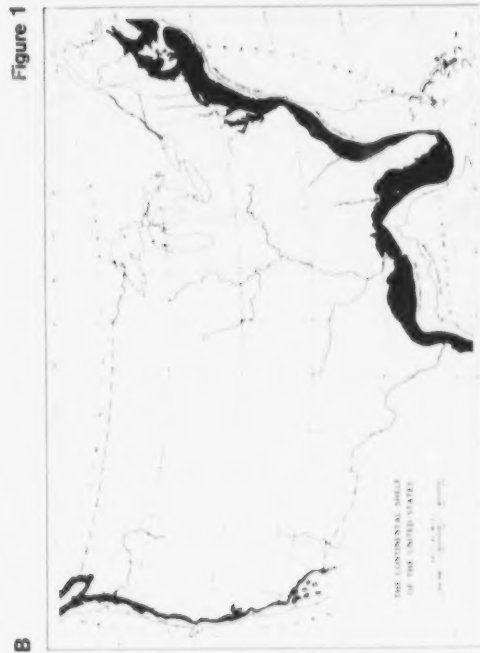
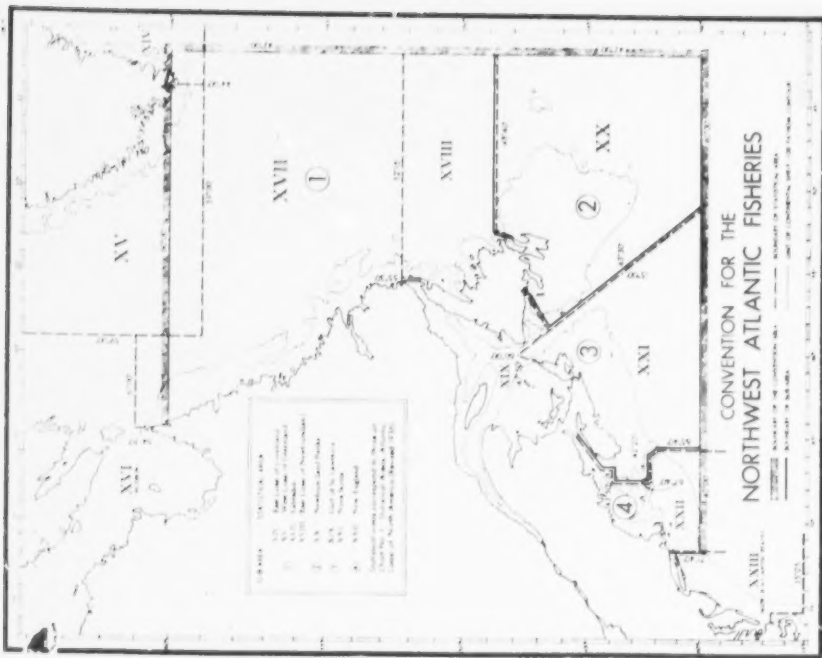
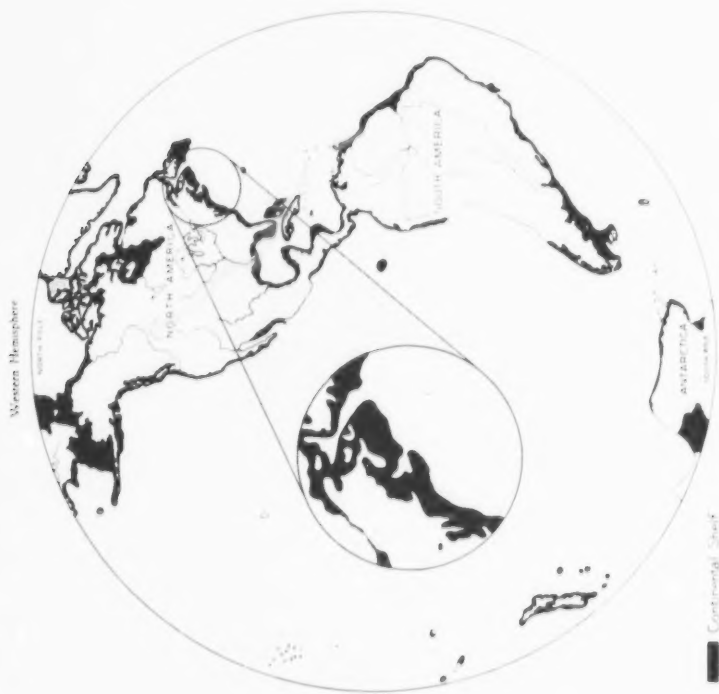


Figure 1

Source: A. I. Shalowitz, *Shore and Sea Boundaries*, Vol. 1, 1962.

United States Memorial, Annex 3, Vol. 1



MAP ATTACHED TO THE UNITED STATES DRAFT CONVENTION (FEBRUARY 1948)
DEPICTING PROPOSED SUBAREA BOUNDARIES AND THE 100-FATHOM DEPTH CONTOUR
AS THE LIMIT OF THE CONTINENTAL SHELF

United States Counter Memorial, Fig. 19

Figure 2

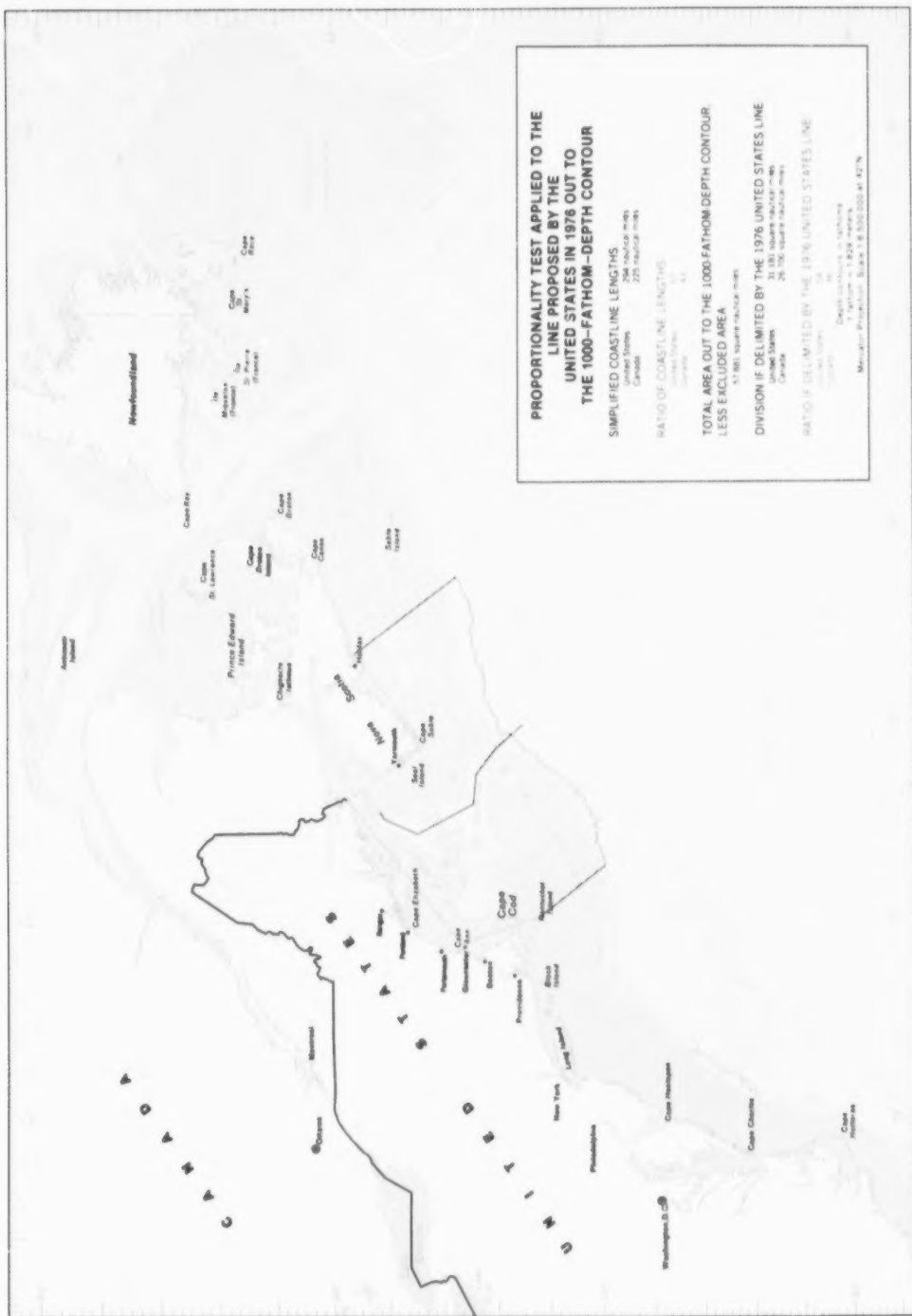


Figure 3

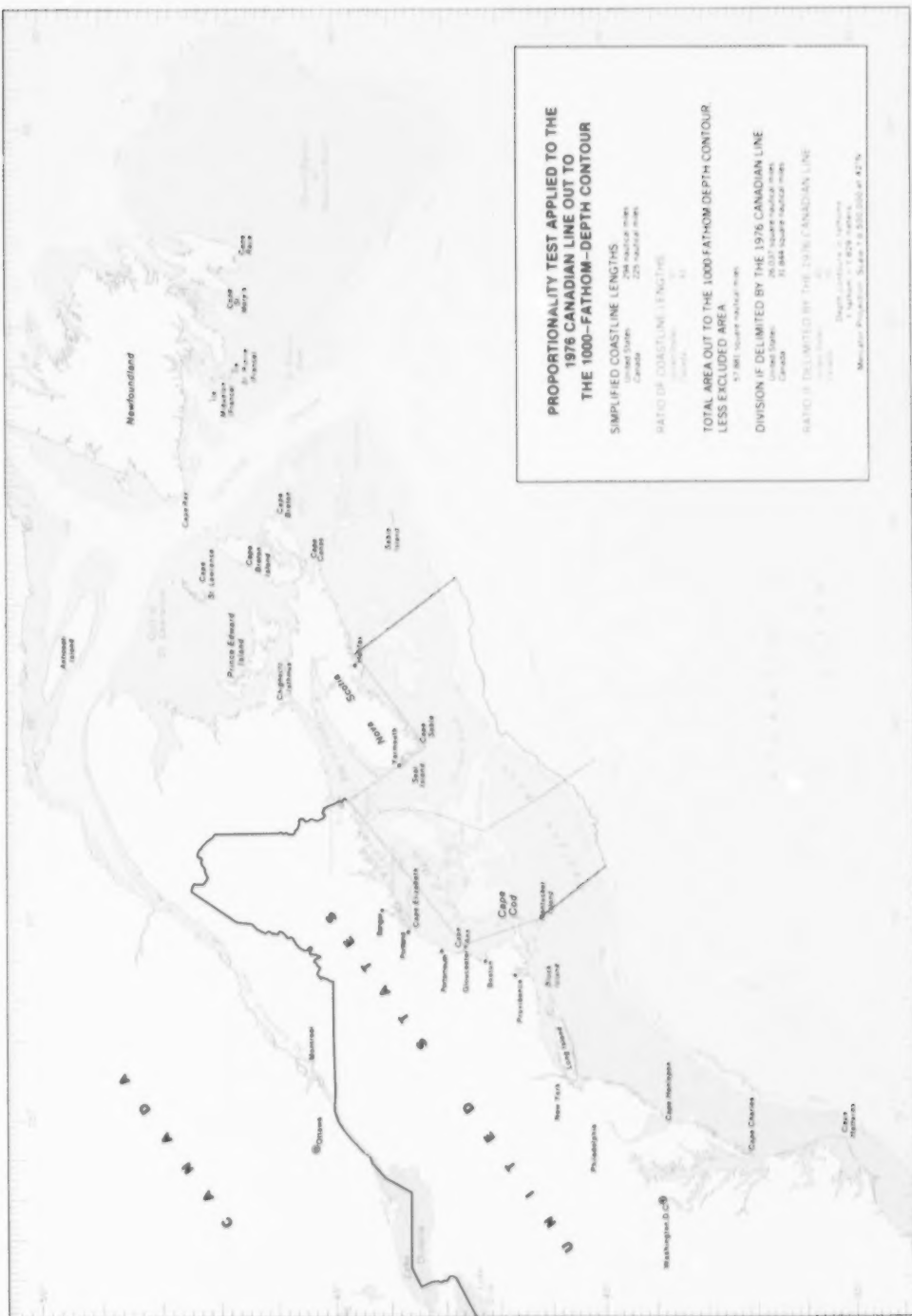
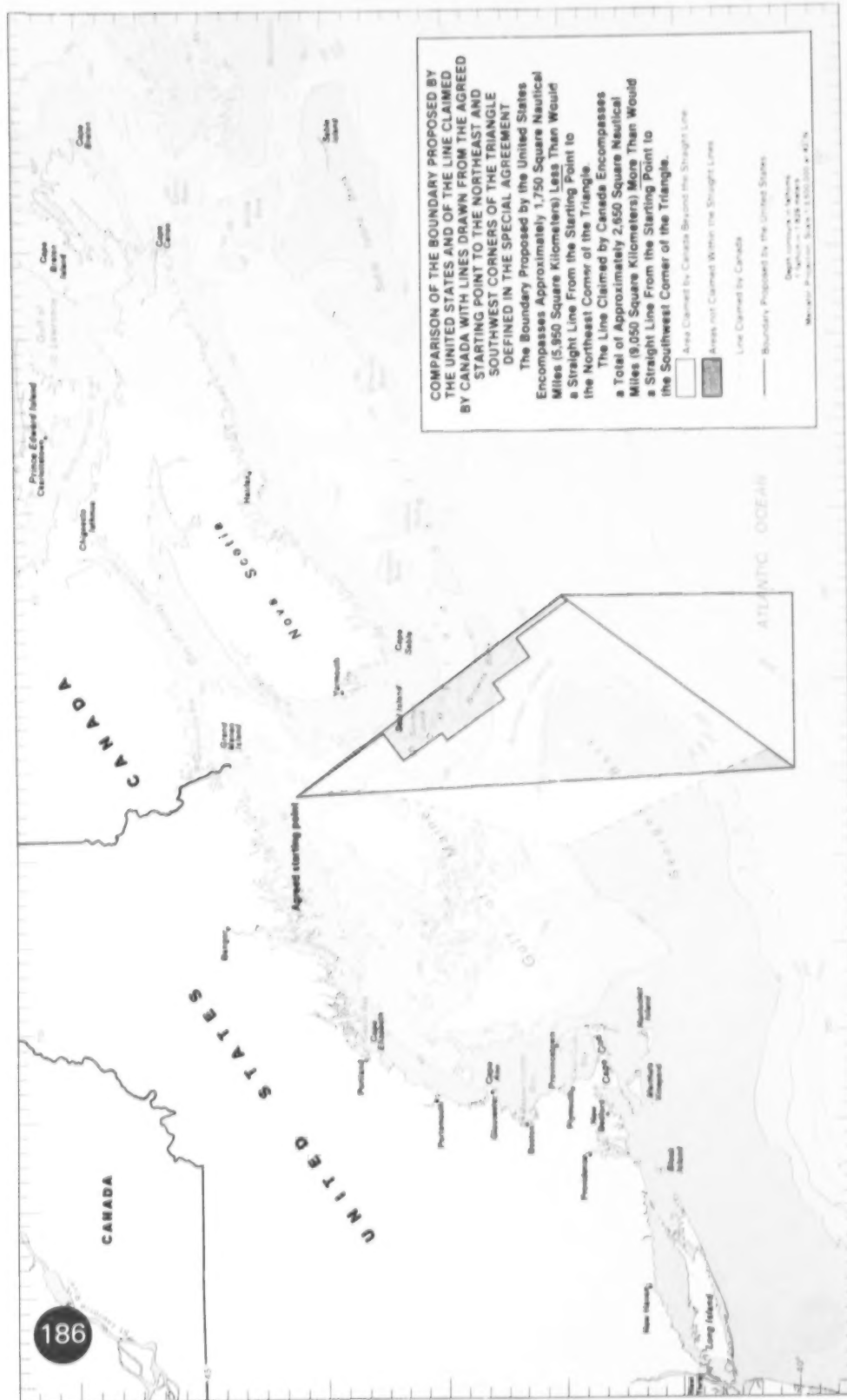
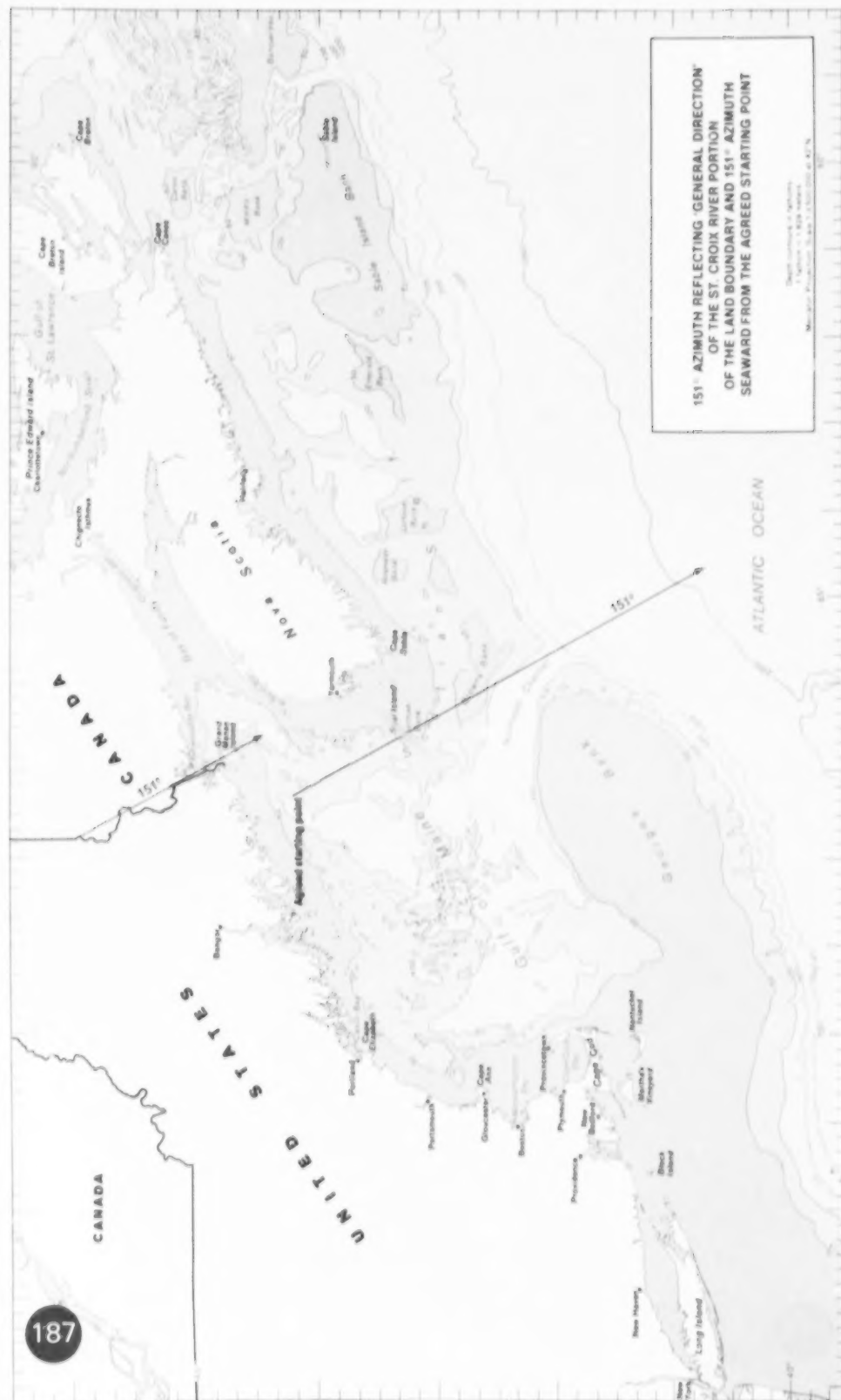


Figure 4





A Figure 8



The English Channel would have to be filled in so as to create a primary coast that is comparable to the primary coast of the United States in the Gulf of Maine area

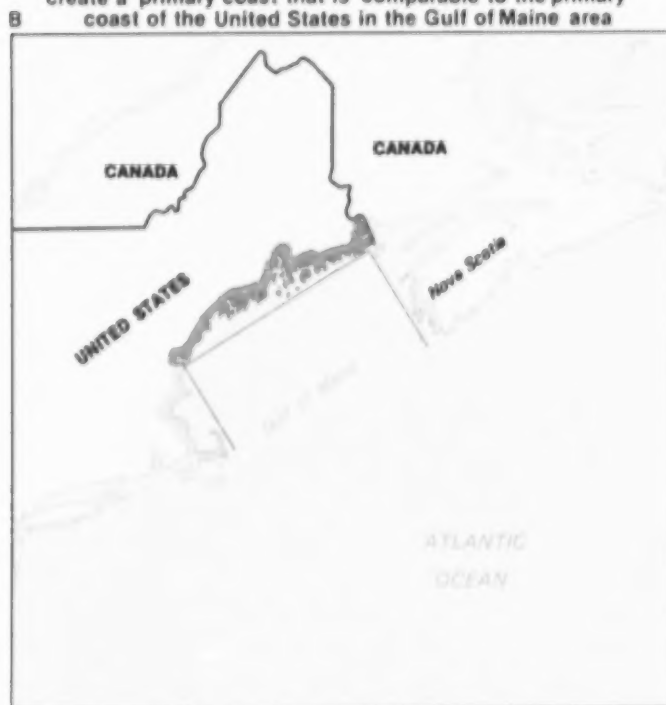


FIGURE 14 OF THE CANADIAN COUNTER-MEMORIAL REVISED TO PERMIT AN ANALOGY BETWEEN THE CONCAVITY IN THE GULF OF MAINE AND A HYPOTHETICAL CONCAVITY IN THE ENGLISH CHANNEL

■ Primary coasts facing the inner and outer area
□ Secondary coasts facing the inner area

Figure 9

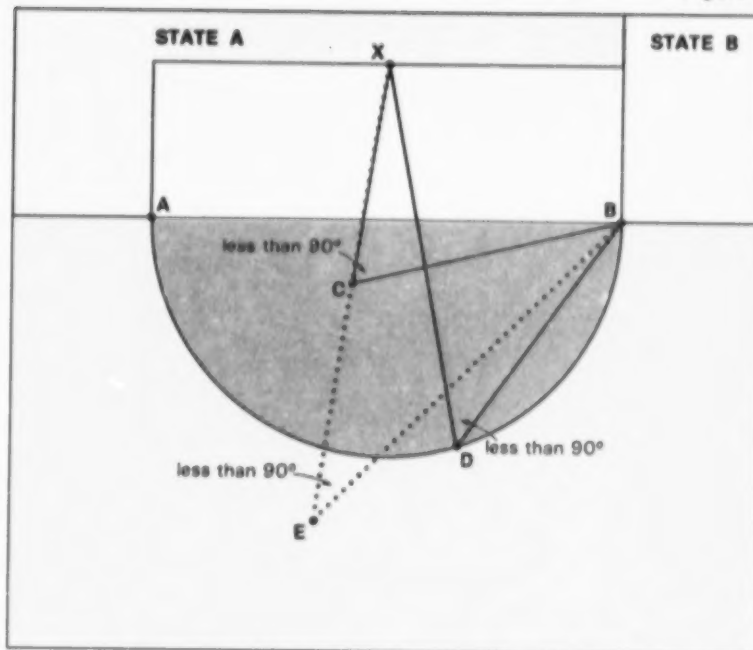
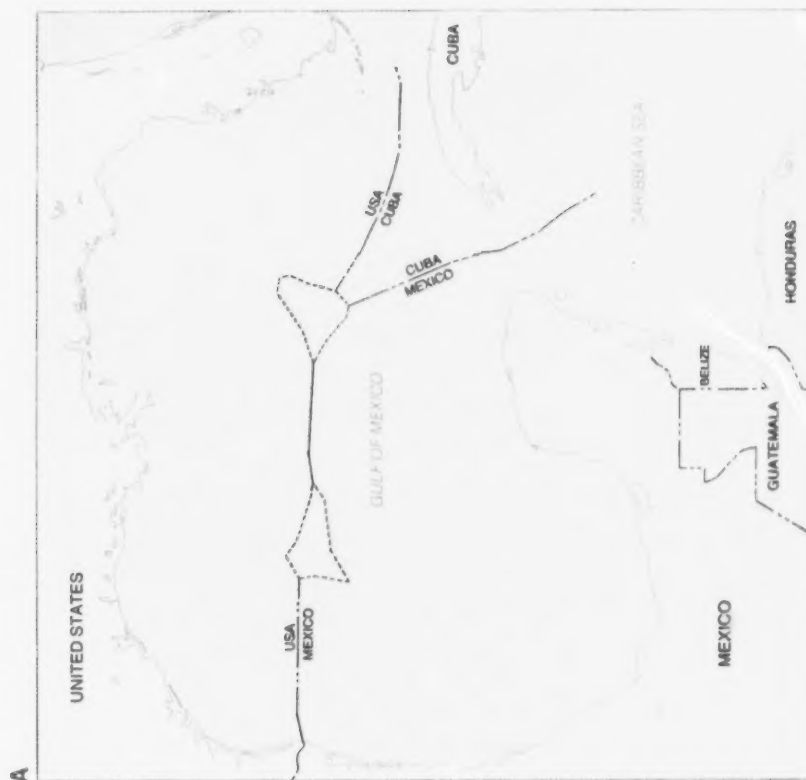


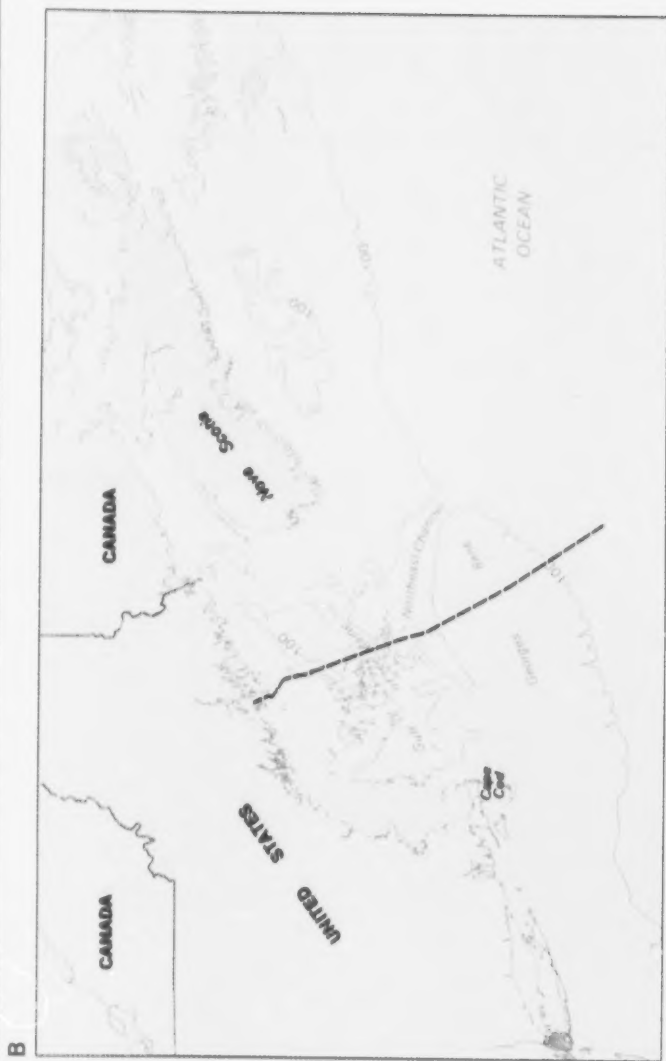
FIGURE 10 OF THE CANADIAN COUNTER-MEMORIAL
MODIFIED TO DEPICT A GEOMETRICAL FIGURE
REPRESENTING A COASTAL CONCAVITY COMPARABLE
TO THE GEOGRAPHY OF THE GULF OF MAINE AREA

Points C, D, and E in Canada's Figure 10 create angles of less than 90° between point B and point X, representing the mid-point on the coastline at the back of the concavity. Pursuant to the theory presented in the Canadian Counter-Memorial, points C, D, and E are adjacent to points B and X.

Figure 10

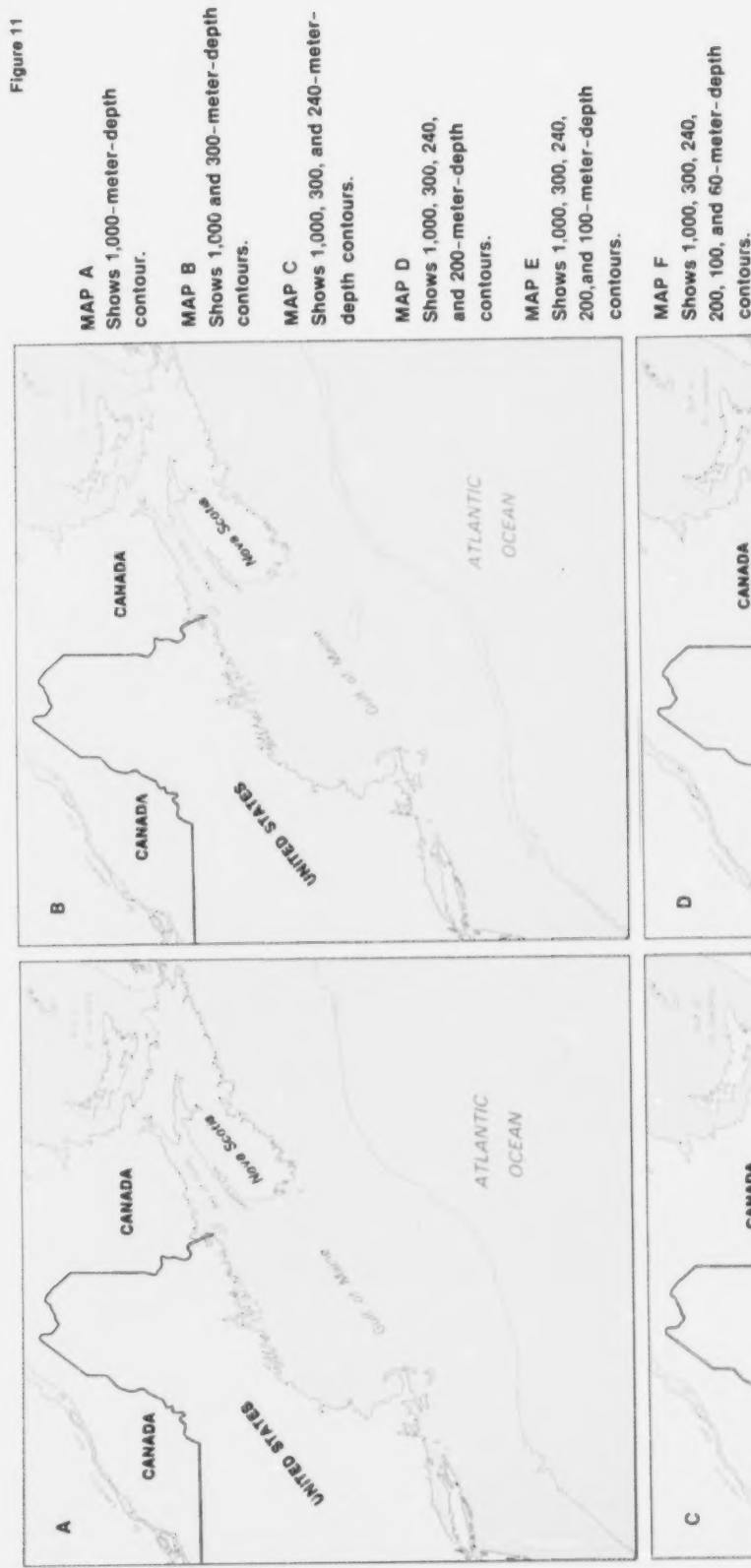


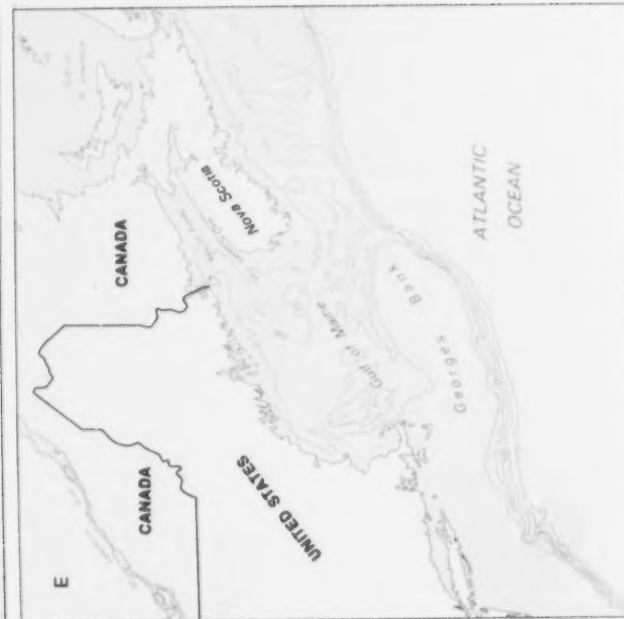
UNITED STATES-MEXICO MARITIME BOUNDARY EXTENDING FROM THE LAND BOUNDARY IN
MIDDLE OF CONCAVITY AS REPRODUCED FROM FIGURE 35A OF THE CANADIAN COUNTER-MEMORIAL



EQUIDISTANT LINE FROM HYPOTHETICAL UNITED STATES-CANADA LAND BOUNDARY IN
MIDDLE OF CONCAVITY TAKEN FROM FIGURE 22 OF THE UNITED STATES COUNTER-MEMORIAL

SUCCESSIVE REPRESENTATION OF BATHYMETRIC (DEPTH) CONTOURS DEPICTED IN FIGURE 3 OF THE CANADIAN COUNTER-MEMORIAL

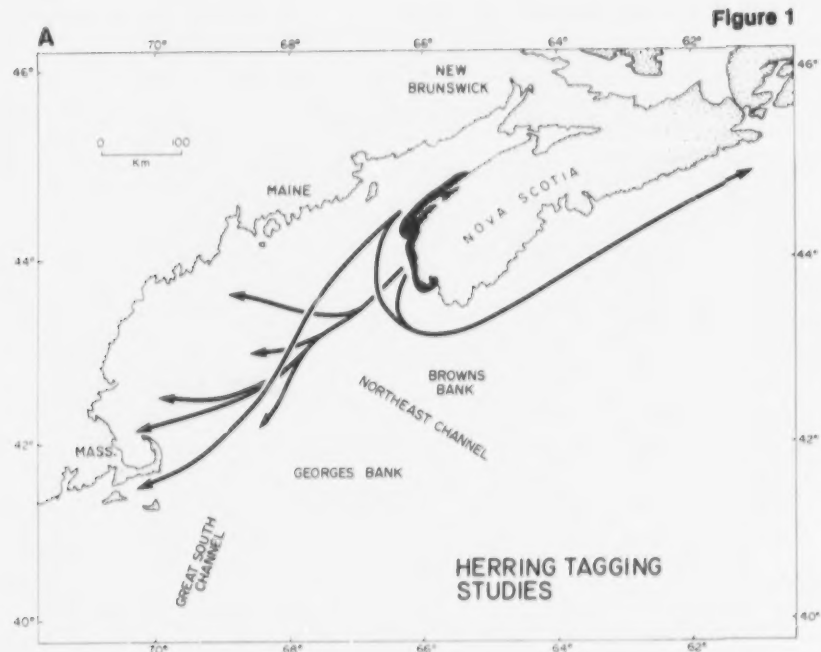




APPLICATION OF THE EQUIDISTANCE METHOD
GIVING "HALF EFFECT" TO THE
SOUTHWESTERN COAST OF NOVA SCOTIA

Depth contours at 10 fathoms
1 fathom = 1 829 meters
Mercator Projection, Scale 1:350 000 at 43°N

Depth contours in fathoms
1 fathom = 1.829 meters
Mercator Projection. Scale 1:500,000 at 42°N



Herring tagging studies, showing extensive movement from the Bay of Fundy throughout the Gulf of Maine area and beyond.

Source: Redrawn from W. T. Stobo

CANADIAN COUNTER-MEMORIAL, ANNEXES, VOL. I, FIG. 53

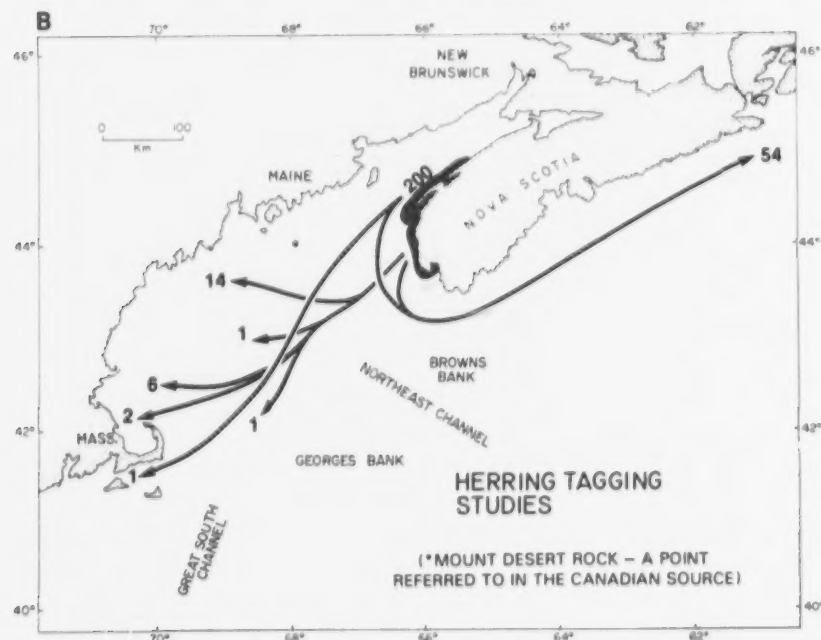
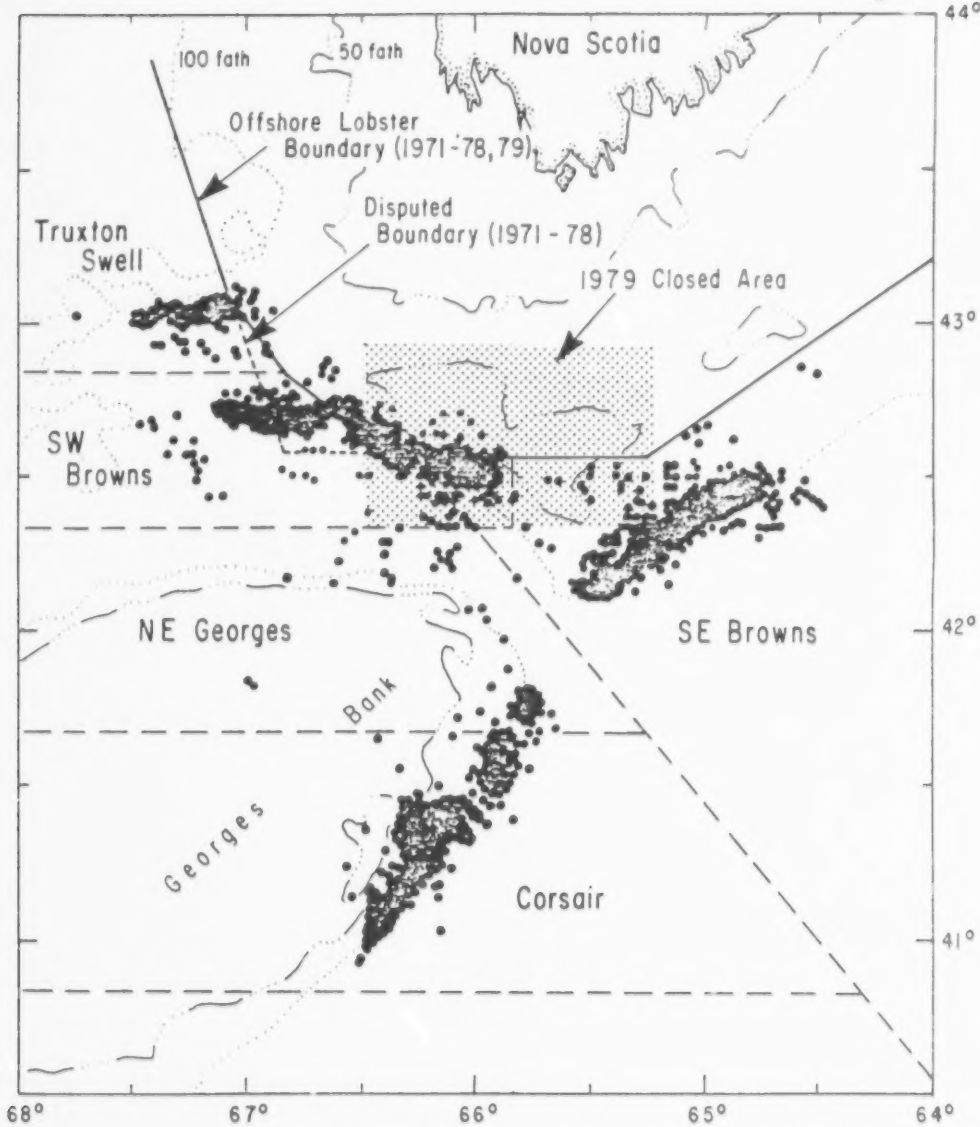


Figure 3

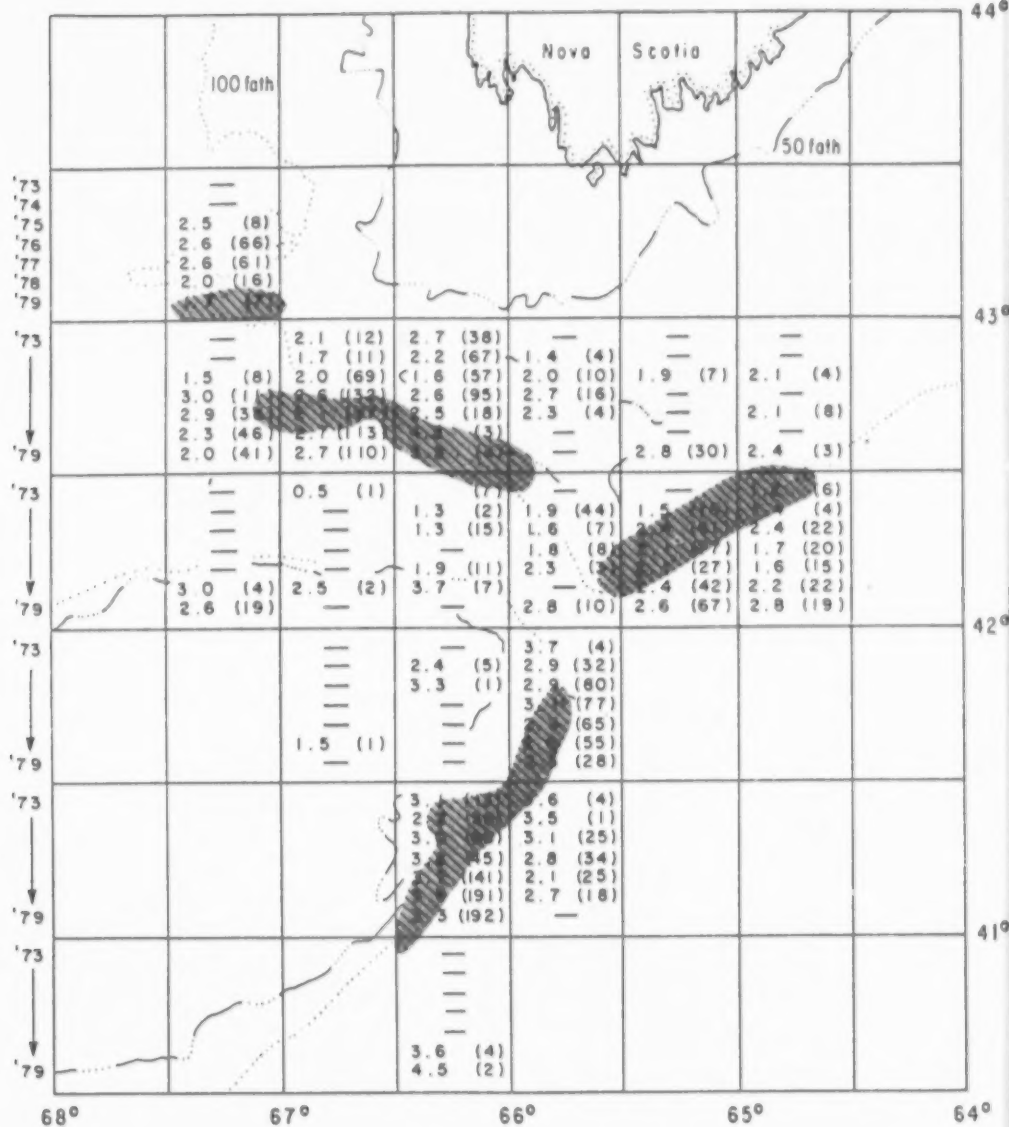


"Canadian offshore lobster fishing areas. Dots indicate fishing location based on fishermen's log books 1973-79."

**CANADIAN OFFSHORE LOBSTER FISHING AREAS AS
ACTUALLY DRAWN BY CANADIAN SCIENTISTS STASKO AND PYE**

Source: Stasko and Pye, p. 10, Fig. 2.

Figure 4

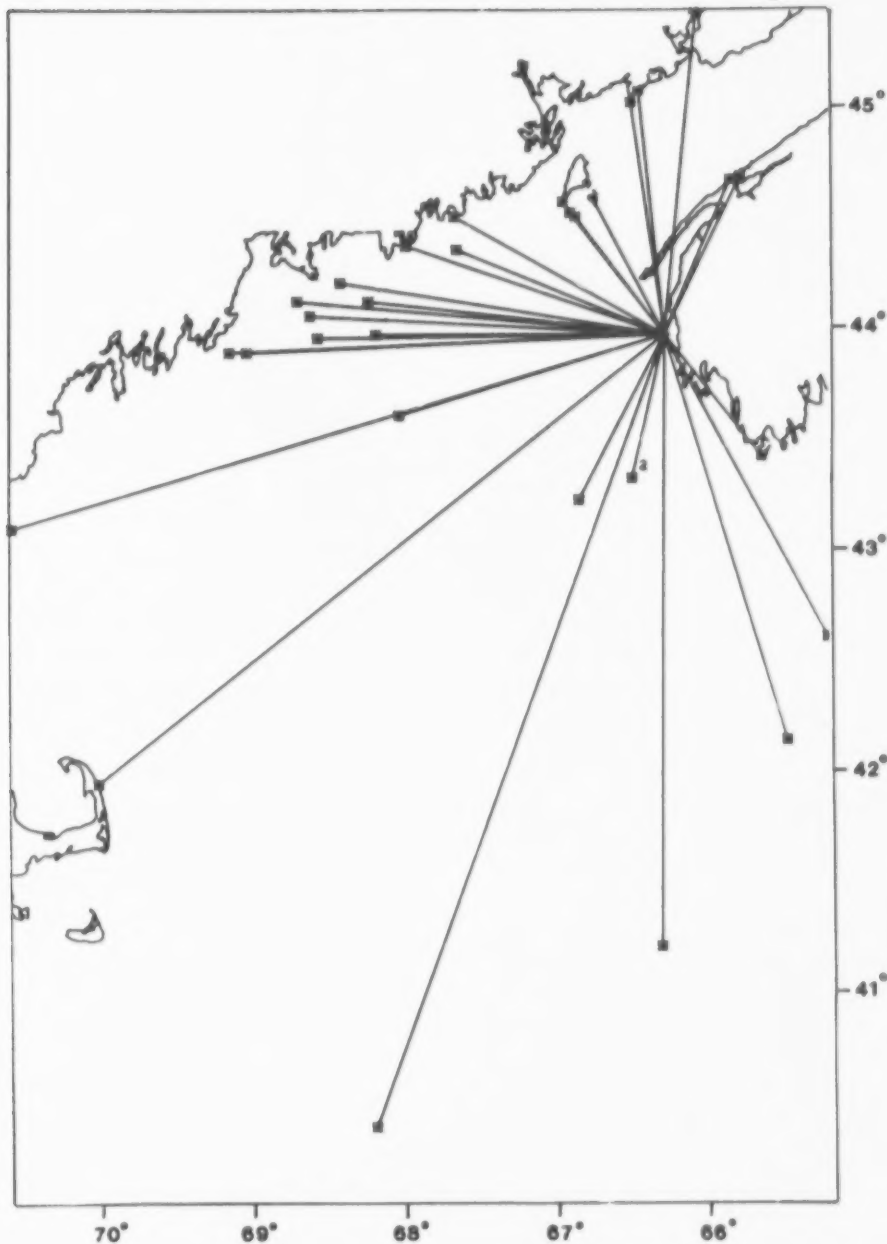


"Commercial catch/effort in kg per trap haul per year 1973 to 1979, followed in brackets by catch in MT, for 30' x 30' areas. Catches, for which location is not known, are excluded. Also excluded are data with less than 1 MT per year per 30' x 30' area. Sequence of numbers within each rectangle is 1973 at top to 1979 at bottom. Concentrations of commercial fishing effort are shown as shaded areas." [Emphasis added.]

CONCENTRATIONS OF COMMERCIAL FISHING EFFORT AS ACTUALLY DRAWN BY CANADIAN SCIENTISTS STASKO AND PYE

Source: Stasko and Pye, p. 11, Fig. 3. [The shaded areas have been darkened in this reproduction for ease of identification.]

Figure 6

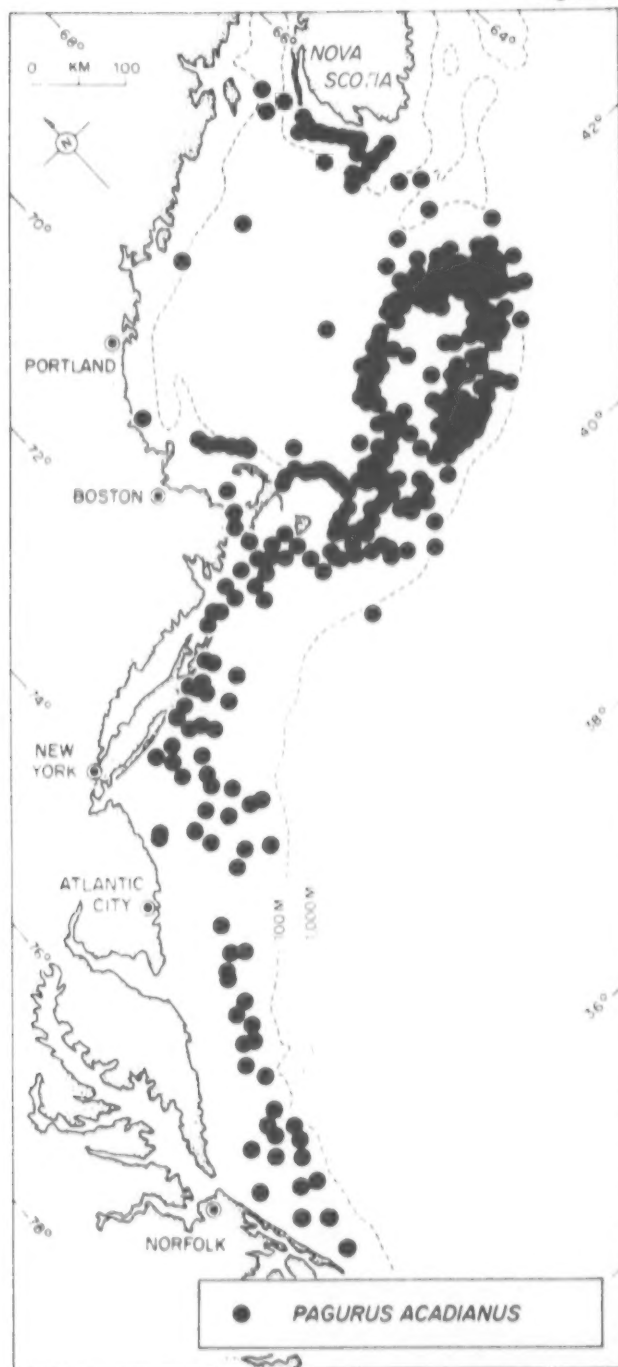


"Map of release and recapture points with straight-line distances traveled for all tagged lobsters recaptured ≥ 74.1 km from the Port Maitland fishing area (1944-81). One lobster caught at location of each asterisk unless otherwise shown." [Emphasis added.]

RECAPTURE POINTS FOR 30 TAGGED LOBSTER OUT OF MORE THAN 14,000 LOBSTER RECAPTURED

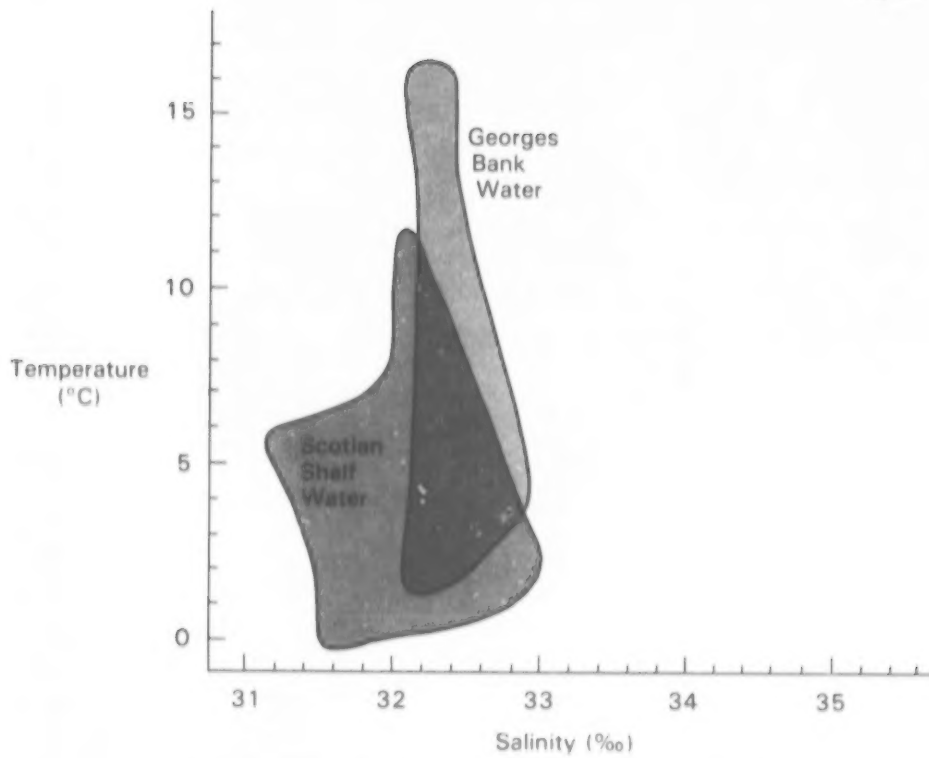
Source: Campbell, 1982, p. 5, Fig. 6.

Figure 4



GEOGRAPHIC DISTRIBUTION OF HERMIT CRAB
PAGURUS ACADIANUS

Figure 1



**TEMPERATURE-SALINITY RELATIONSHIP FOR THE
GEORGES BANK AND SCOTIAN SHELF WATER MASSES**

Source: Derived from Canadian Counter-Memorial, Annexes, Vol. I, Fig. 13.

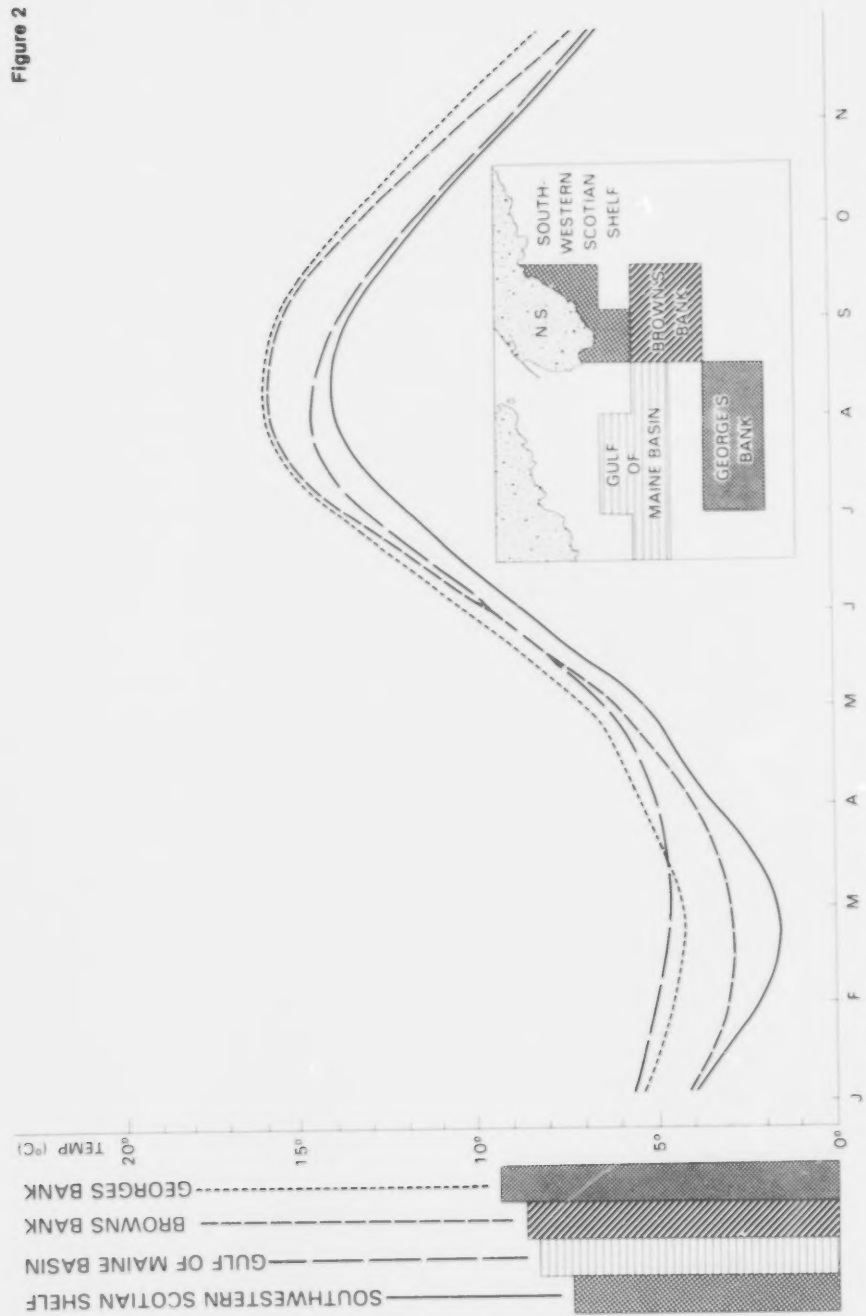
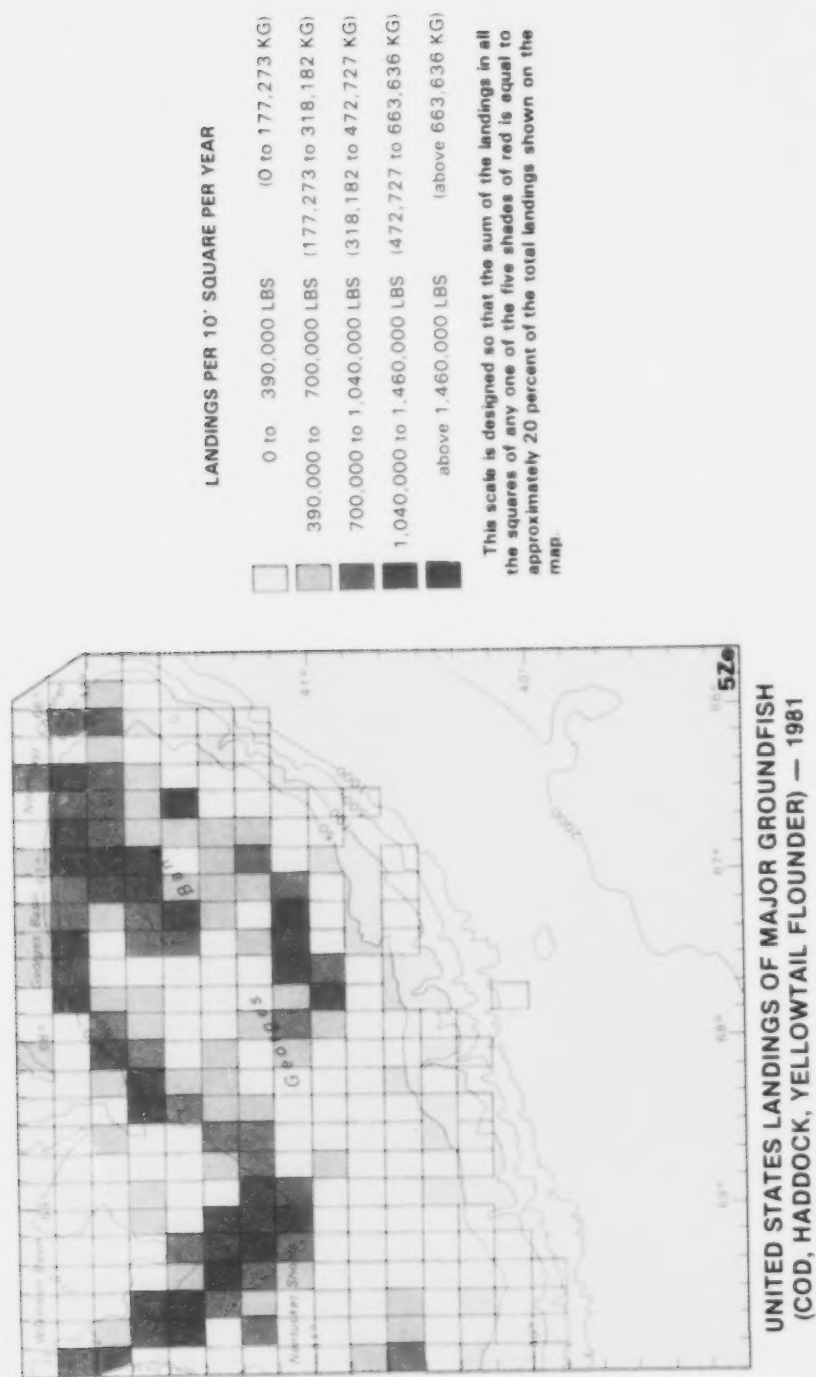


Figure 2

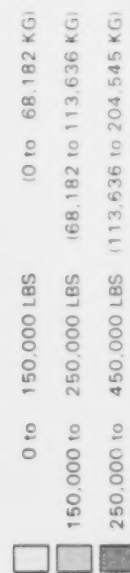
MODIFICATION OF CANADIAN FIGURE 14 SHOWING SEA-SURFACE TEMPERATURE PATTERNS FOR SELECTED WATERS OF THE SOUTHWESTERN SCOTIAN SHELF, THE GULF OF MAINE BASIN, AND GEORGES BANK

Source: Derived from Canadian Counter-Memorial, Annexes, Vol. I, Fig. 14.





LANDINGS (MEAT WEIGHT) PER 10' SQUARE PER YEAR



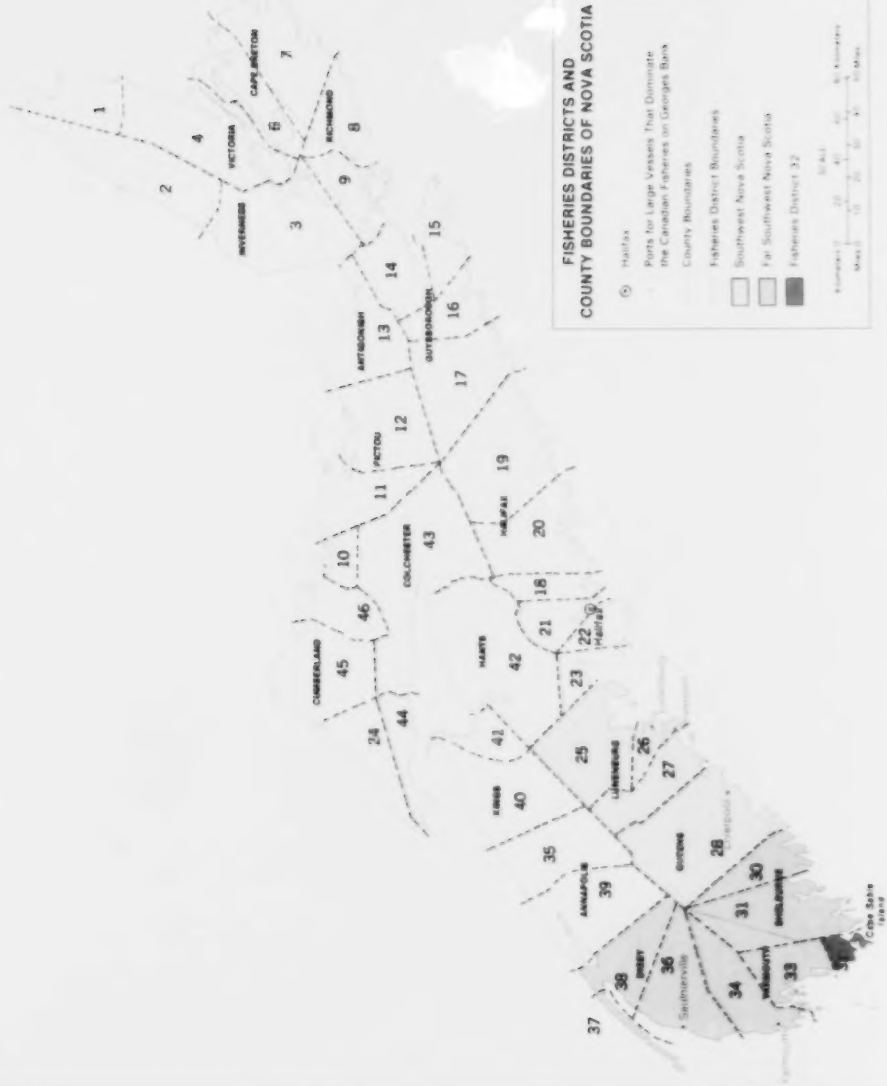
450,000 to 1,000,000 LBS (204,545 to 454,545 KG)

above 1,000,000 LBS (above 454,545 KG)

This scale is designed so that the sum of the landings in all the squares of any one of the five shades of red is equal to approximately 20 percent of the total landings shown on each map

Figure 2

FISHERIES DISTRICTS AND COUNTY BOUNDARIES OF NOVA SCOTIA



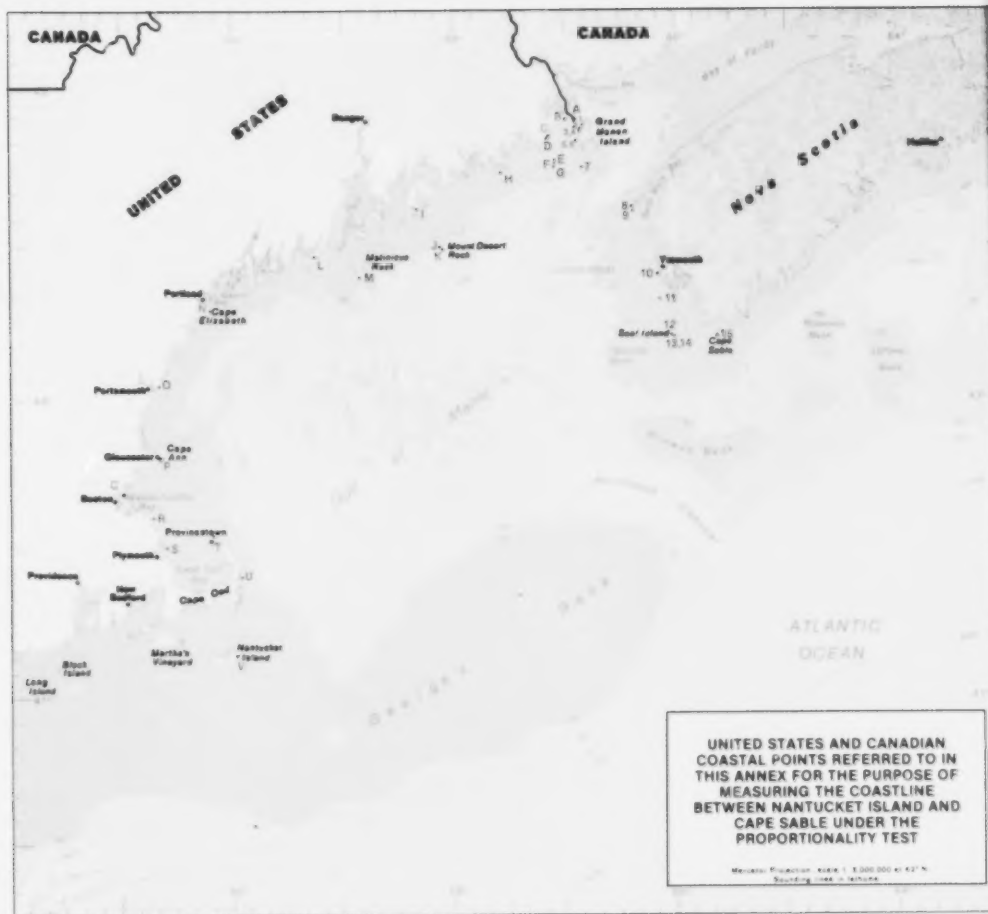
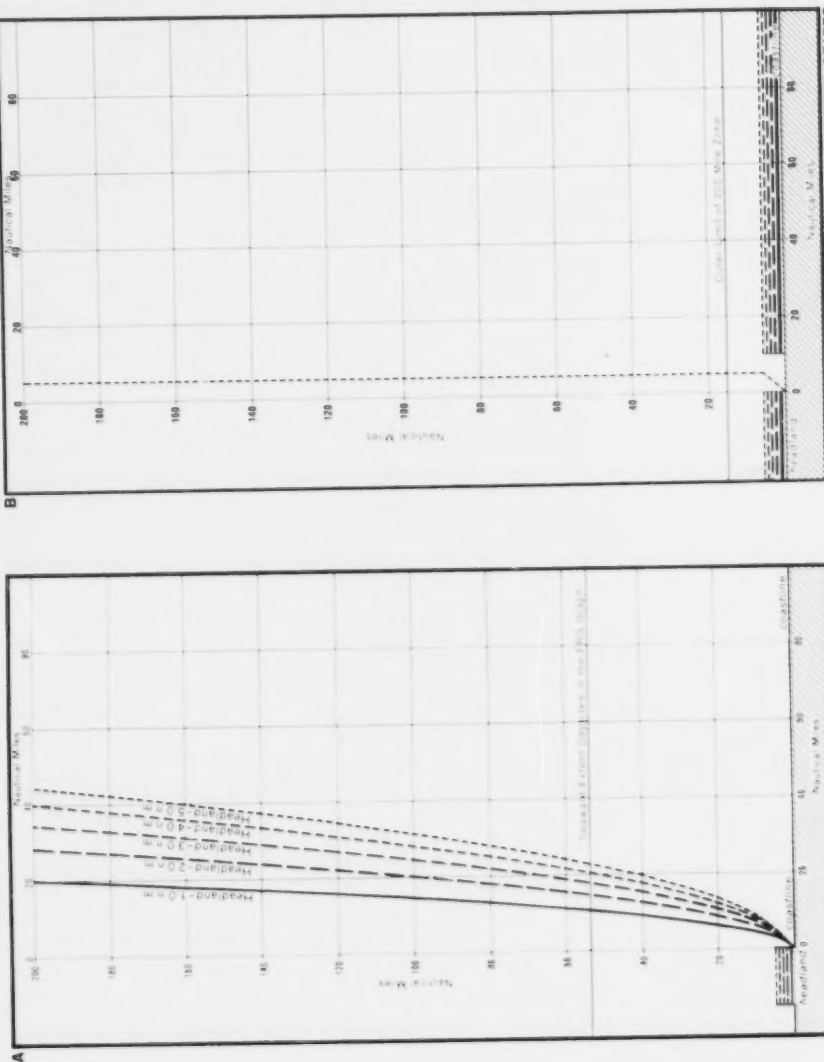




Figure 9
The Canadian Line

Depths in Metres
Projection - Mercator
Scale - 1:4 700 000 at 41°N

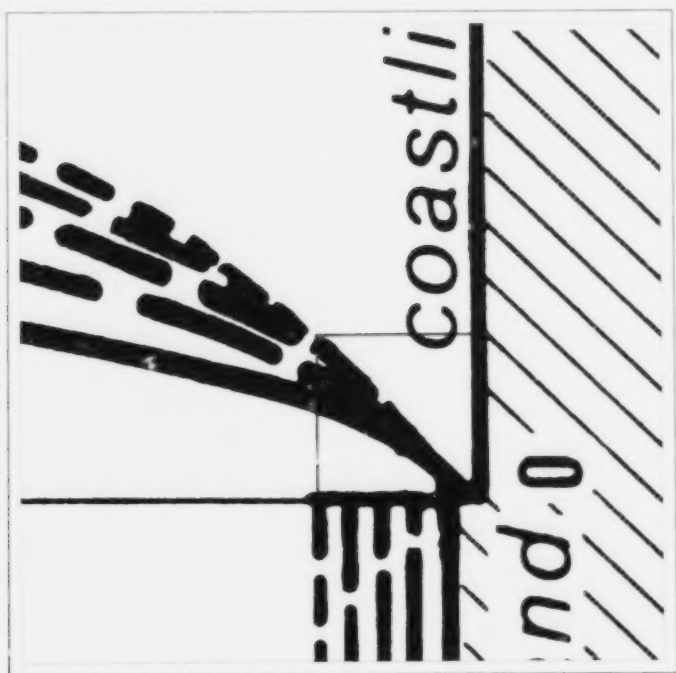
Figure 32
Comparison of the
Relative Effects of a
Headland and a
Three-Sided
Concavity on an
Equidistance Line



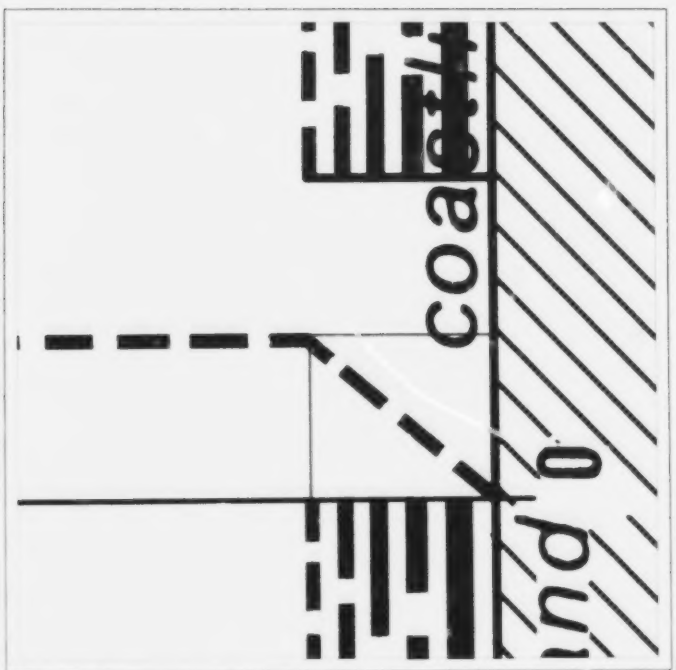
UNITED STATES MEMORIAL, FIGURE 25 AND UNITED STATES
REPLY, FIGURE 5 AMENDED TO SHOW A THREE-SIDED
CONCAVITY TWICE AS WIDE AS DEEP

GRAPH BASED UPON THE METHOD EMPLOYED IN THE
ARGUMENT OF PROFESSOR JAENICKE OF THE
FEDERAL REPUBLIC OF GERMANY IN THE NORTH SEA
CONTINENTAL SHELF CASES (PLEADINGS, VOL. II, P. 29),
EXTENDED TO 200 NAUTICAL MILES (370 KM.)
SEAWARD OF THE COASTLINE

UNITED STATES MEMORIAL, FIGURE 25



A



B

Figure 33
Close-up of Figure 32
Comparison of the
Relative Effects of a
Headland and a
Three-Sided
Concavity on an
Equidistance Line

Figure 37

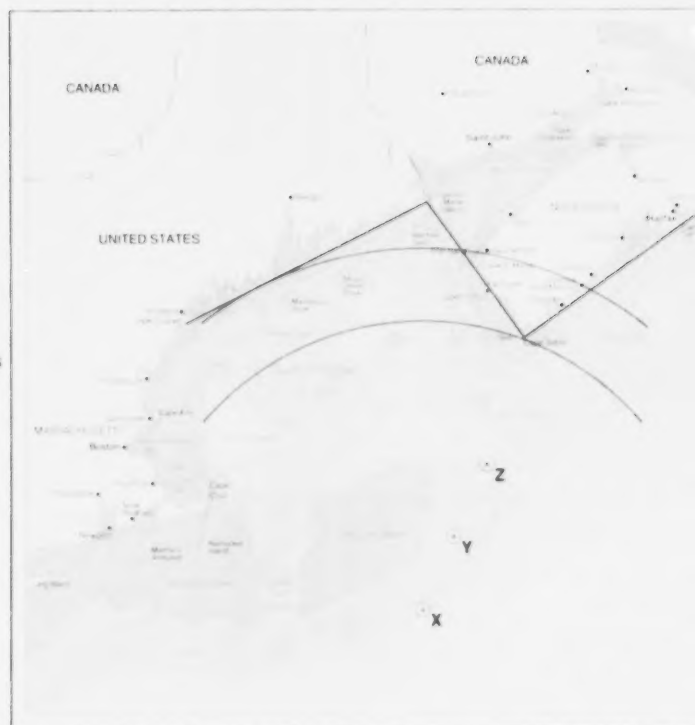
The Proximity Test

A
Coastal fronts used in testing the relative proximity of Nova Scotia and the state of Maine to Georges Bank

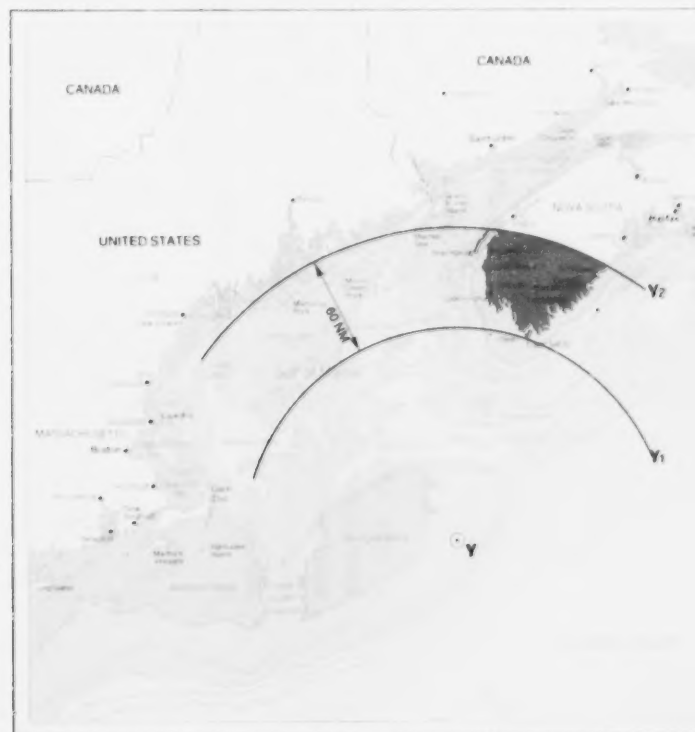
B
Area of Nova Scotia that lies closer to the farthest point claimed by Canada on Georges Bank than does the coastal front of the state of Maine

C
Area of Nova Scotia that lies closer to the central part of the disputed area on Georges Bank than does the coastal front of the state of Maine

D
Area of Nova Scotia that lies closer to the northeast peak of Georges Bank than does the coastal front of the state of Maine

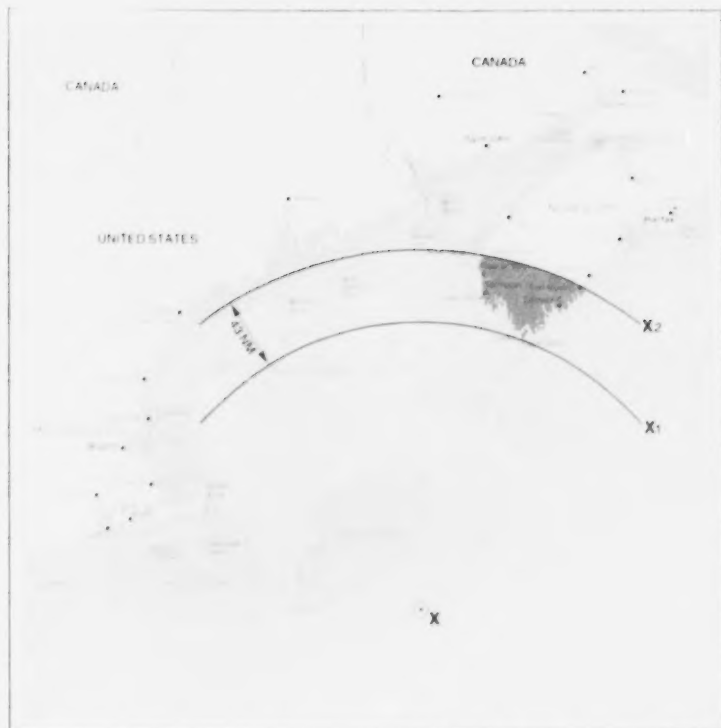


A

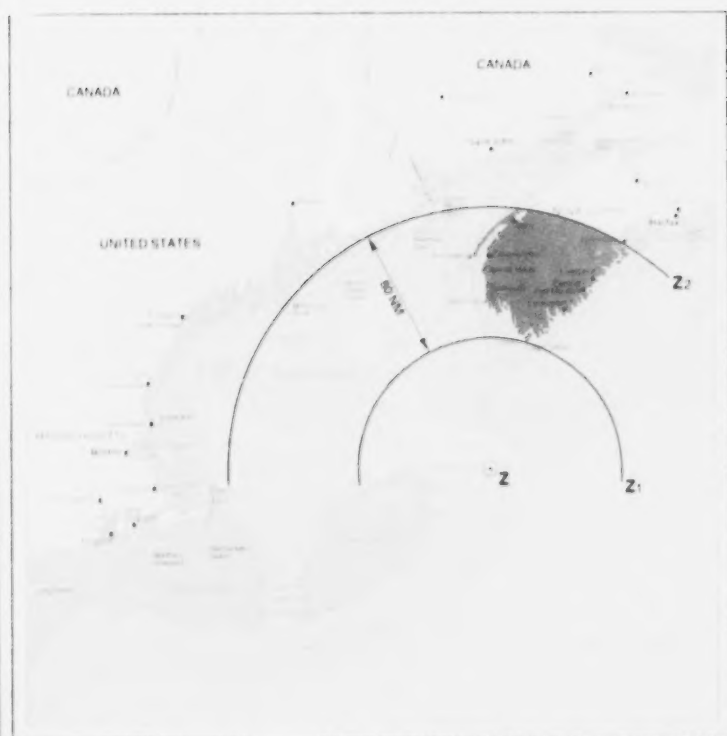


C

Depths in Metres
Projection—Mercator
Scale—1:7 300 000 at 41° N



B



D

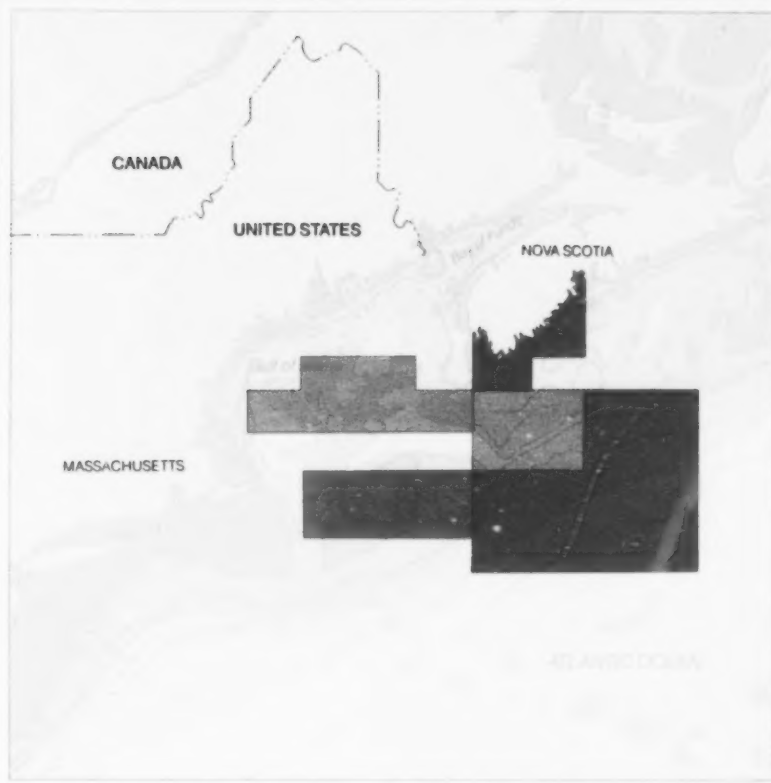
Figure 56

Sea Surface
Temperatures of the
Gulf of Maine Area

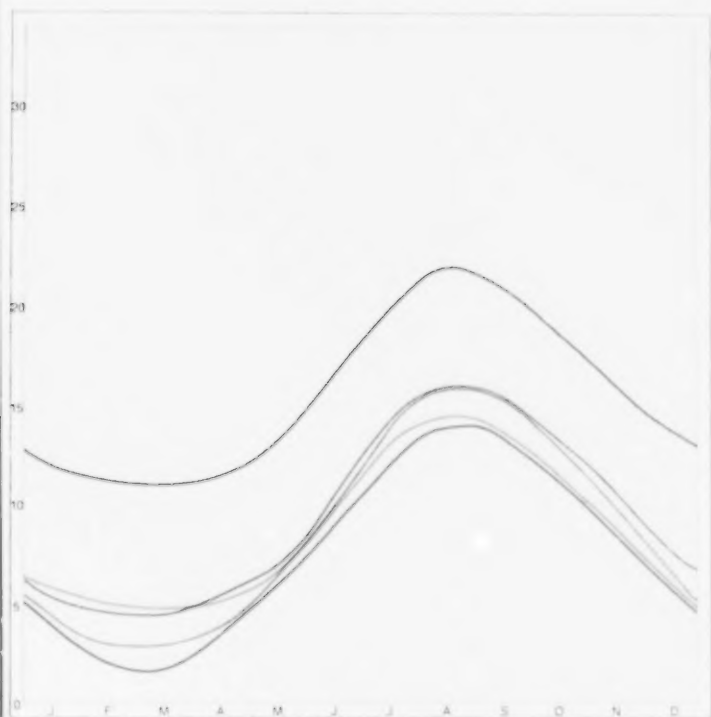
- Western Scotian Shelf
- Gulf of Maine
- Browns Bank
- Georges Bank
- Slope Water

Source: Derived from
Canadian Counter-Memorial
Annexes, Vol. I, Figure 14.

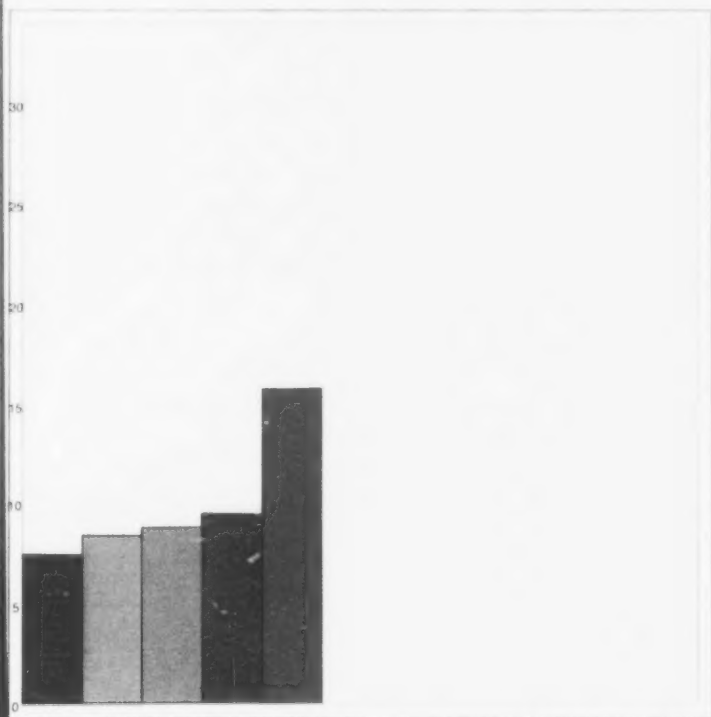
Depth in Meters
Projection: Mercator
Scale: 1:10,000,000 at 41°N



A Selected Areas



B Monthly Temperatures (°C)



C Annual Temperatures (°C)

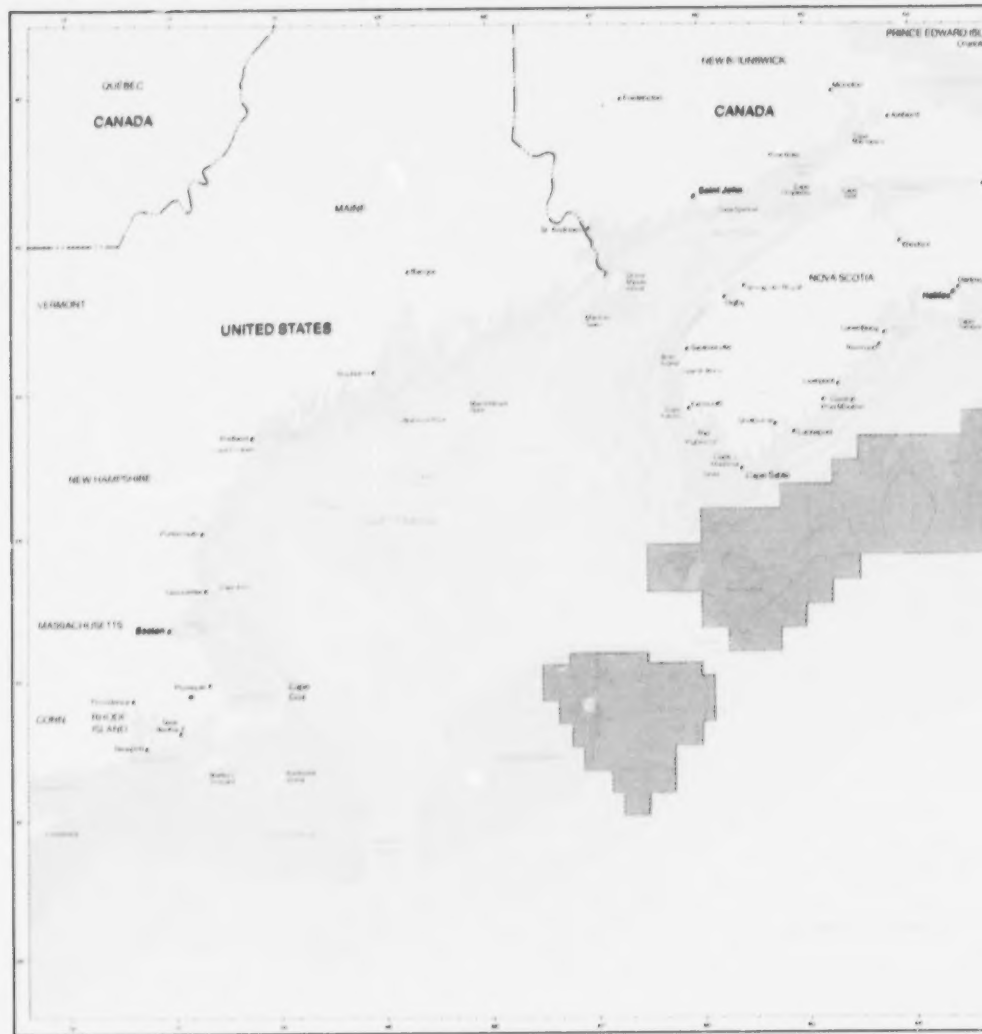


Figure 61

Part of the Permit Map Attached to the Letter of 8 April 1965 from the Canadian Department of Northern Affairs and National Resources to the United States Department of the Interior Depicted on a Canadian Basemap of the Gulf of Maine Area

Source: Canadian Memorial Annexes, Vol. III, Annex 3, p. 10.

Depicts in Minutes
Projection: Mercator
Scale: 1:240,000 at 41°N

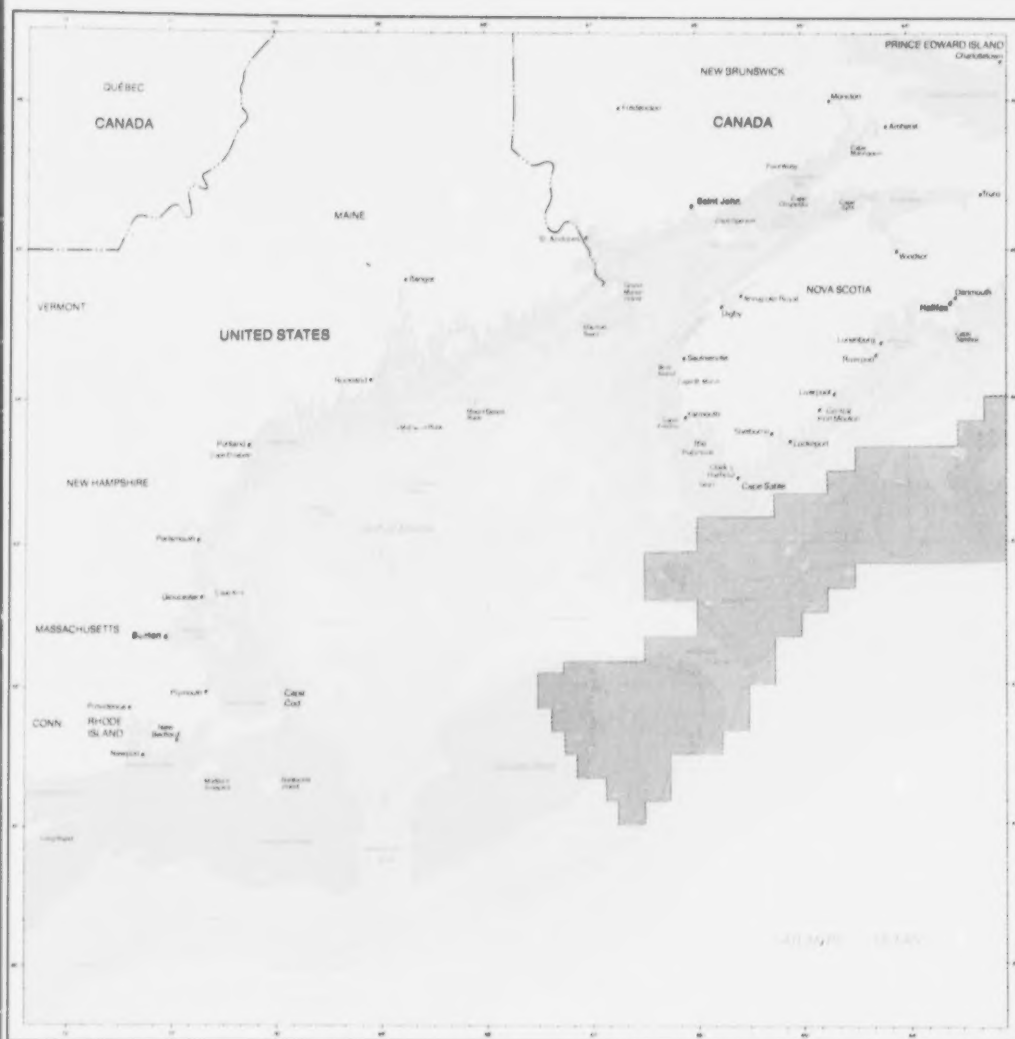


Figure 62
Part of the Permit
Map Attached to
the Letter of 30
August 1966 from
the Canadian
Department of
External Affairs to
the United States
Embassy at Ottawa.
Depicted on a
Canadian Basemap
of the Gulf of
Maine Area

Depths in Metres
Projection - Mercator
Scale - 1:3 240 000 at 41°N



Figure 72A
Seismic Lines
Shot by Canadian
Licensees and
Permittees in the
Gulf of Maine-
Georges Bank Area,
1965-1969

- Chevron, 1965
- Texaco, 1965
- Mobil, 1966
- Mobil, 1967
- Mobil, 1968
- Texaco, 1968
- Central Del Rio, 1969
- Chevron, 1969
- Texaco, 1969

Depth in Meters
Projection: Mercator
Scale: 1:3,240,000 at 41°N



Figure 72B

Seismic Lines
Shot by Canadian
Licensees and
Permittees in the
Gulf of Maine-
Georges Bank Area,
1970-1973

	Digicon, 1970		Digicon, 1972
	Texaco, 1970		GSL, 1972
	Chevron, 1971		Texaco, 1972
	Digicon, 1971		Chevron, 1973
	Texaco, 1971		Mobil, 1973
	Chevron, 1972		

Depths in Meters
Projection: Mercator
Scale: 1:5,000,000 at 41°N

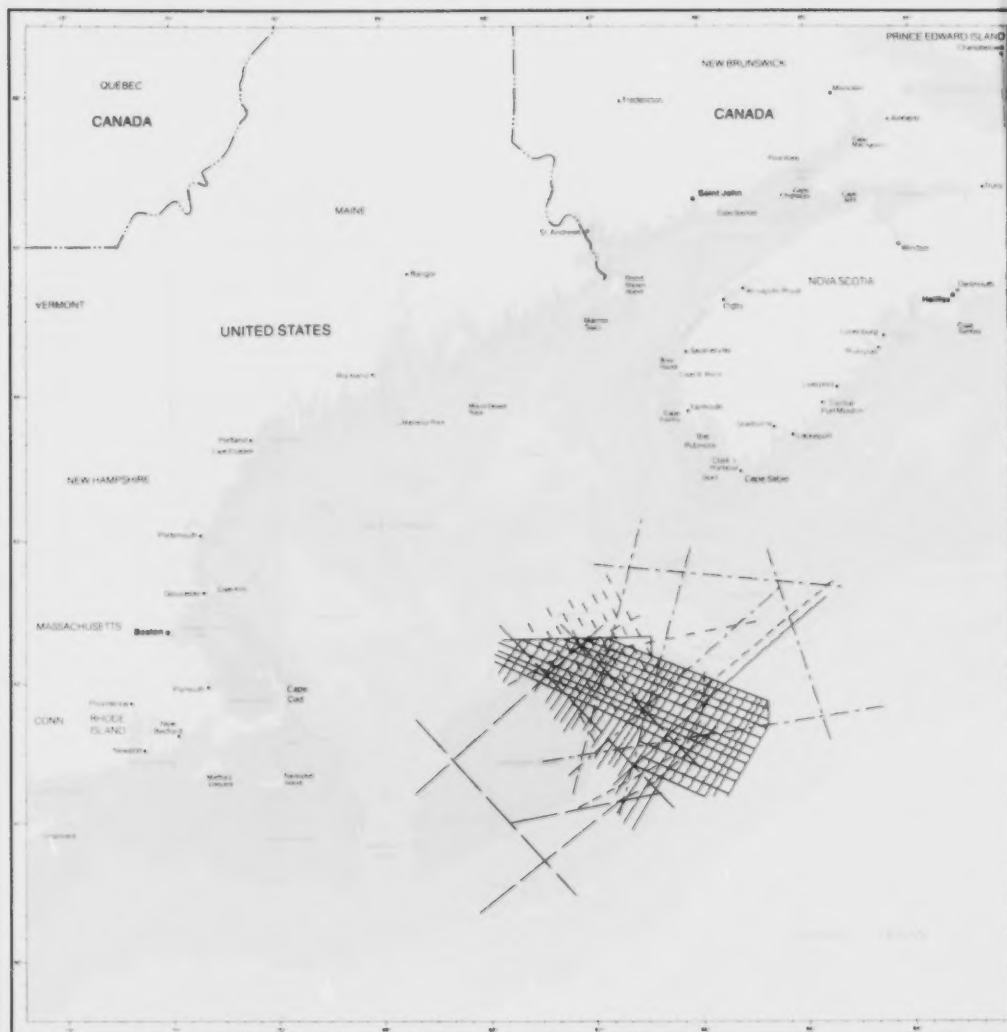


Figure 72C

**Seismic Lines
Shot by Canadian
Licensees and
Permittees in the
Gulf of Maine-
Georges Bank Area,
1974-1979**

- Canadian Superior, 1974
- Digicon, 1974
- Digicon, 1975
- Exxon, 1975
- Texaco, 1976

Diagram in Maine
Projection: Mercator
Scale: 1:5,240,000 at 41°N

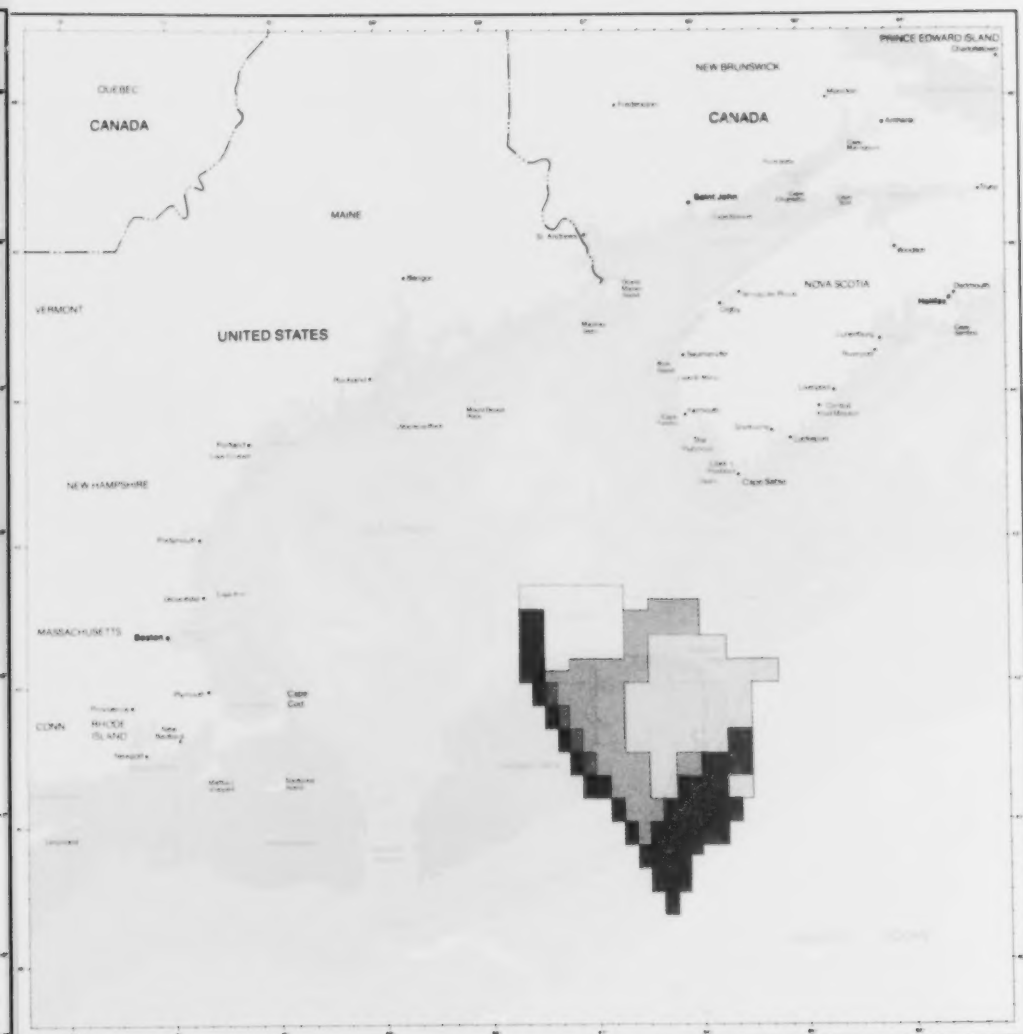
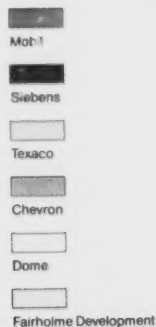


Figure 72D
Canadian Oil and Gas Permits in the Gulf of Maine-Georges Bank Area



Diagrams in Maine
 Projection - Mercator
 Scale - 1:3 240 000 at 41°N

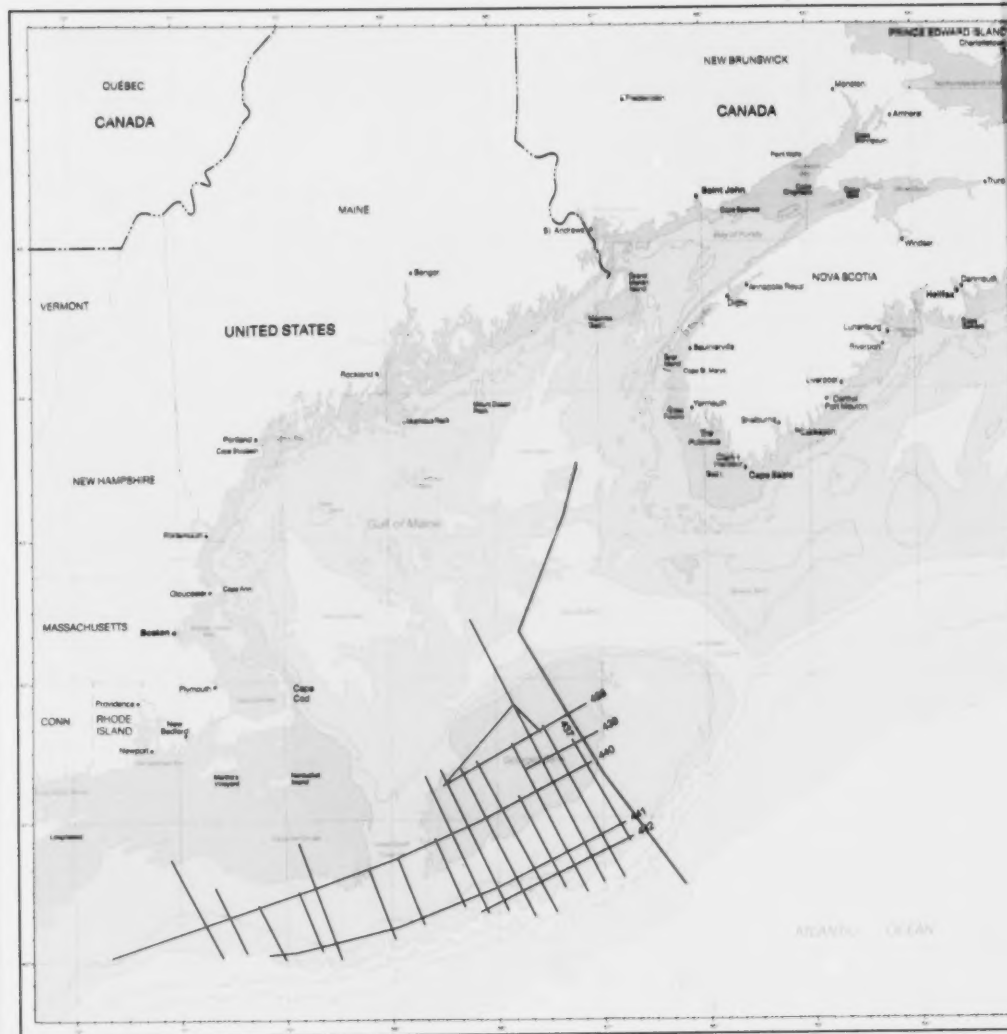


Figure 74

The 1969 East Coast Joint Survey

Survey lines shot by Digicon pursuant to United States geophysical permit E2-69

The United States BLM line

Notes: Attachment V to one of the documents pertaining to this permit notes that "Permit E2-69 authorized operations along the numbered lines shown on plat received with the application. Portions of two of the lines extend to the Canadian side of the BLM line." (Italics added.) Canadian Reply, Annexes, Vol II, p. 574.

Depth in Meters
Projection: Mercator
Scale: 1:3240 000 at 41°N

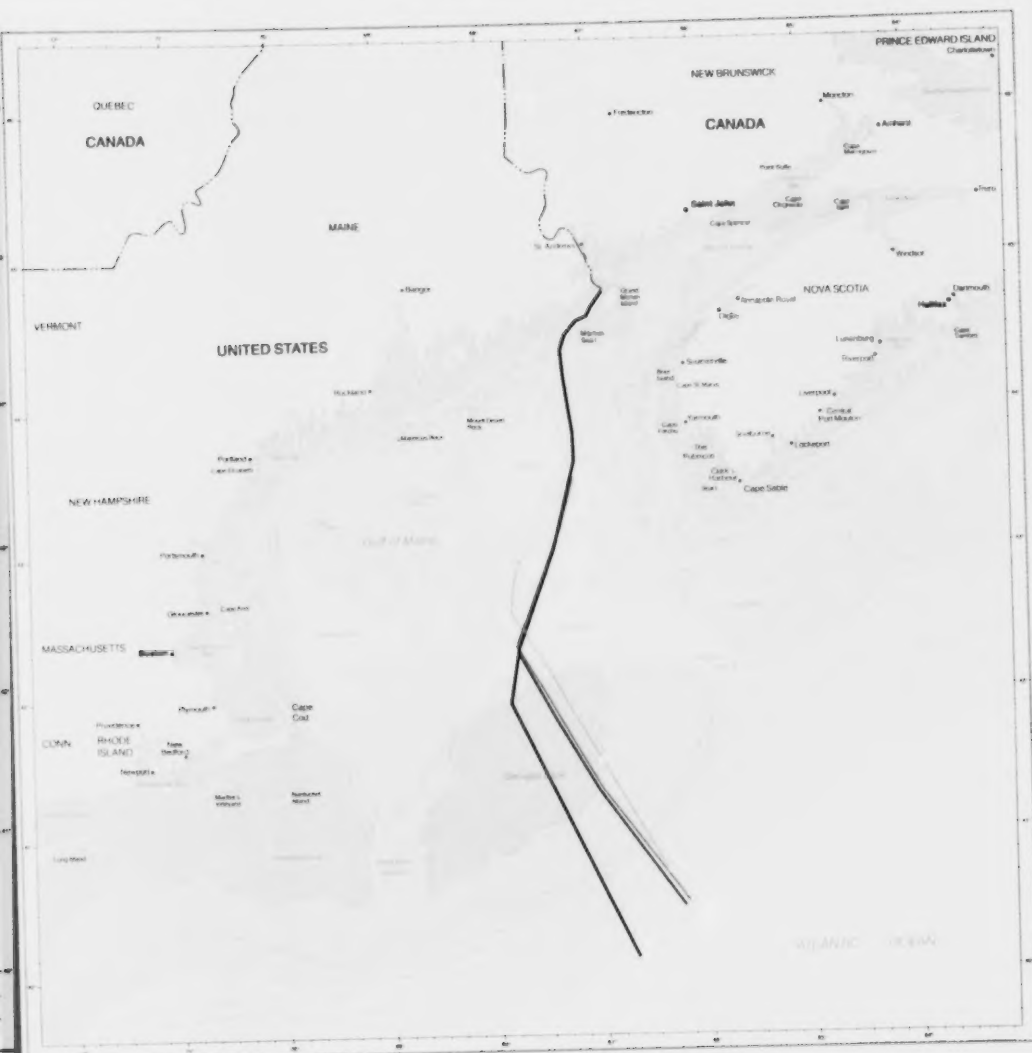


Figure 76

Applications of the
Equidistance
Method in the Gulf
of Maine Area

-  Strict equidistance line
-  United States BLM line
-  United States surveys boundary
-  Canadian line

Depths in Meters
Projection - Mercator
Scale - 1:3,240,000 @ 41°N

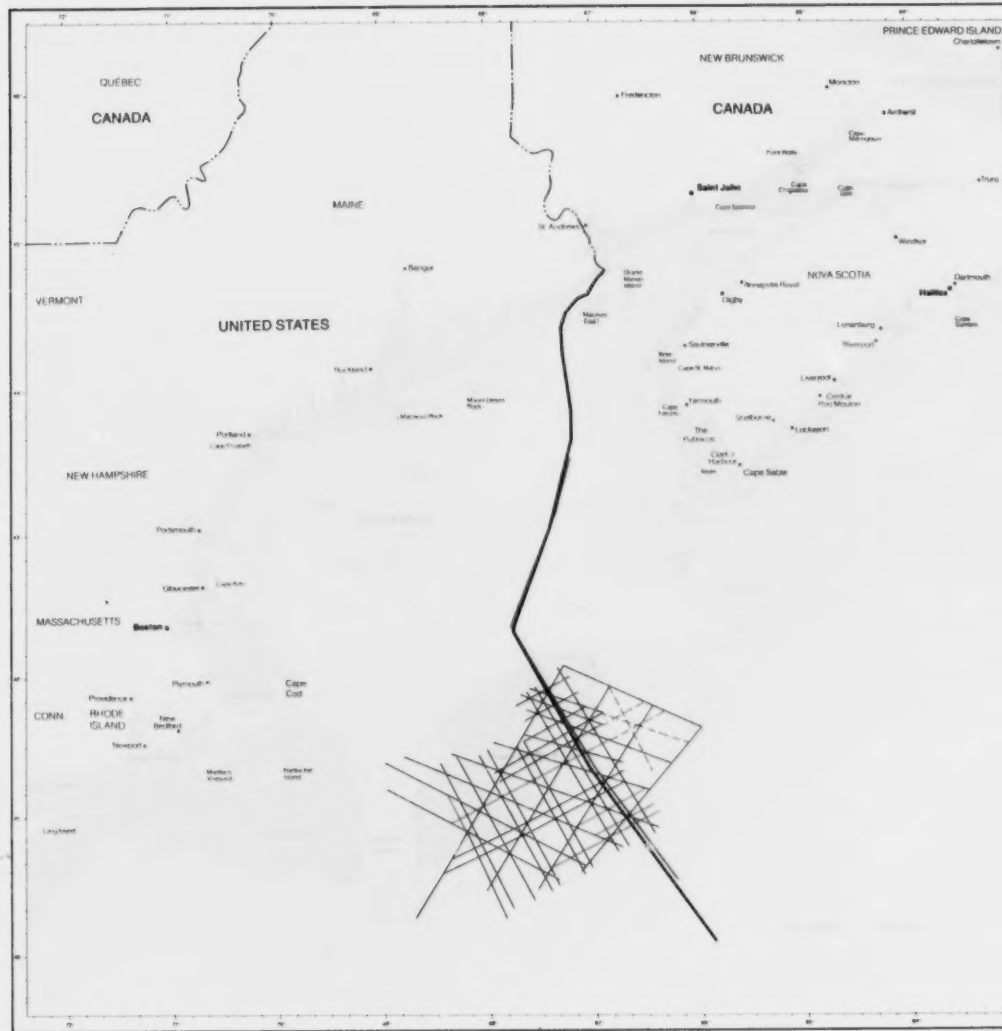


Figure 77
The 1972 East Coast
Joint Survey:
Canadian and
United States
Extensions

Original survey lines shot by
 Digicon pursuant to United
 States geophysical permit
 E2-72

Additional survey lines shot in
 "Canadian" portion of
 extension (XC lines)

Additional survey lines shot in
 "U.S." portion of extension
 (XU lines)

The United States BLM line

The strict equidistance line

Depicts in Metric
 Projection: Mercator
 Scale: 1:3,040,000 at 41°N

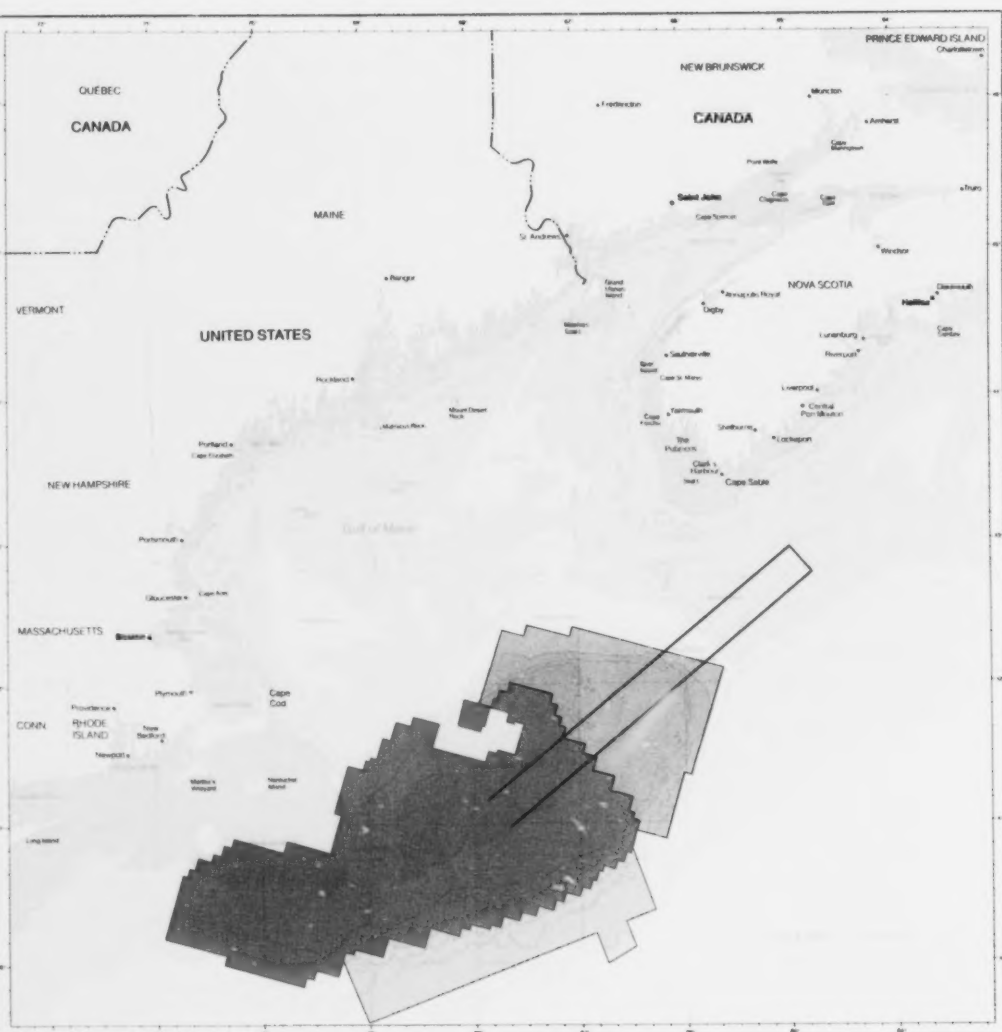


Figure 79
The 1974 and 1975
East Coast Joint
Surveys: "Georges
Bank" and
"Extensions"

"Georges Bank" area
surveyed under United States
geophysical permits E1-74
and E3-75 issued to Digicon

"Georges Bank Slope" area
surveyed under United States
geophysical permit E1-74
issued to Digicon

Additional "DX" survey lines
shot by Digicon in 1974

"Georges Bank Northeast
Extension" area surveyed
under United States geophysi-
cal permit E3-75 issued to
Digicon

Note: Digicon was also autho-
rized to conduct surveys in
the "D," "DS" and "DX" areas
under Canadian licences
2245 (1975) and 2414 (1975)

Digicon in Marine
Production - Maritime
Scale - 1:500,000 at 61°N

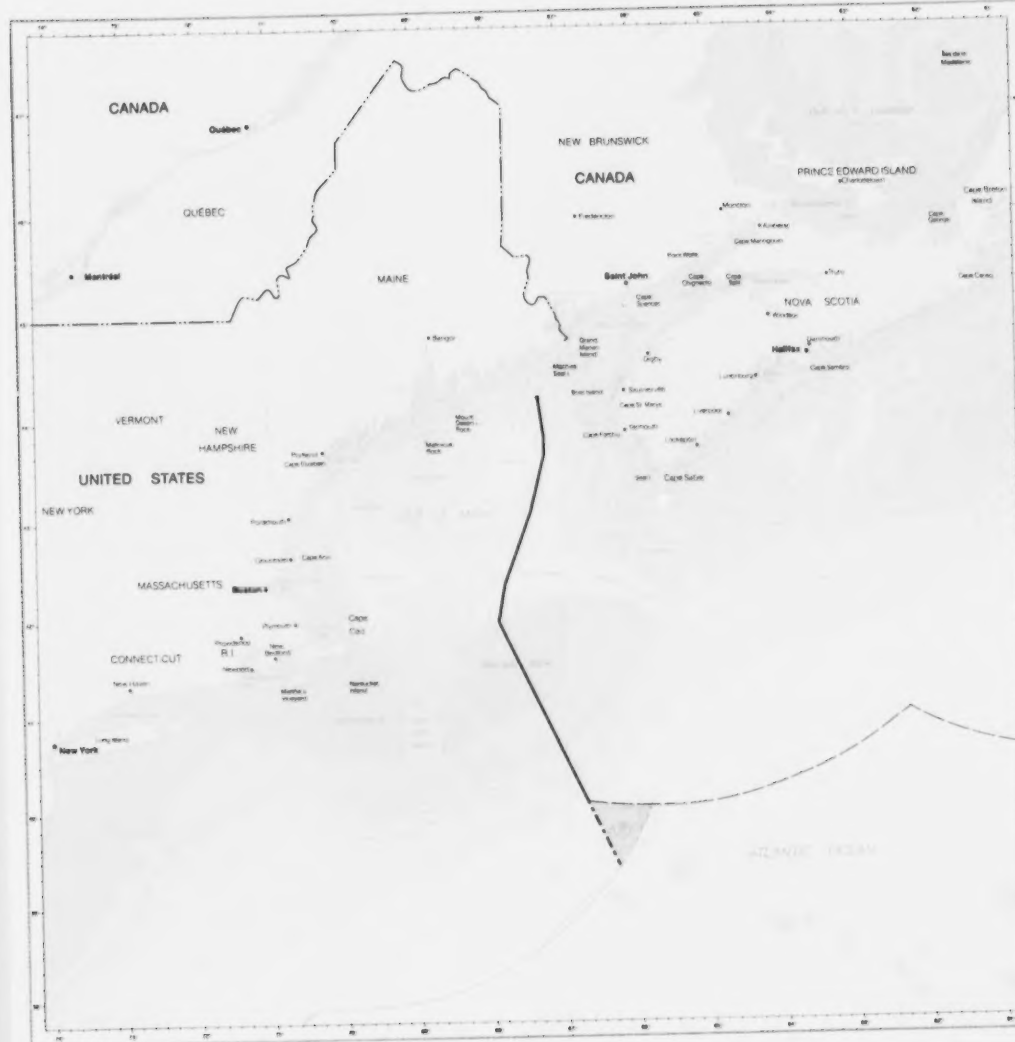


Figure 89
The "Grey Area":
The Canadian Line

-  Canadian line
-  Outer limit of Canadian 200-mile zone
-  Outer limit of United States 200-mile zone
-  "Grey Area" 771 square nautical miles

Depth in Meters
Projection: Mercator
Scale: 1:4,750,000 at 41°N

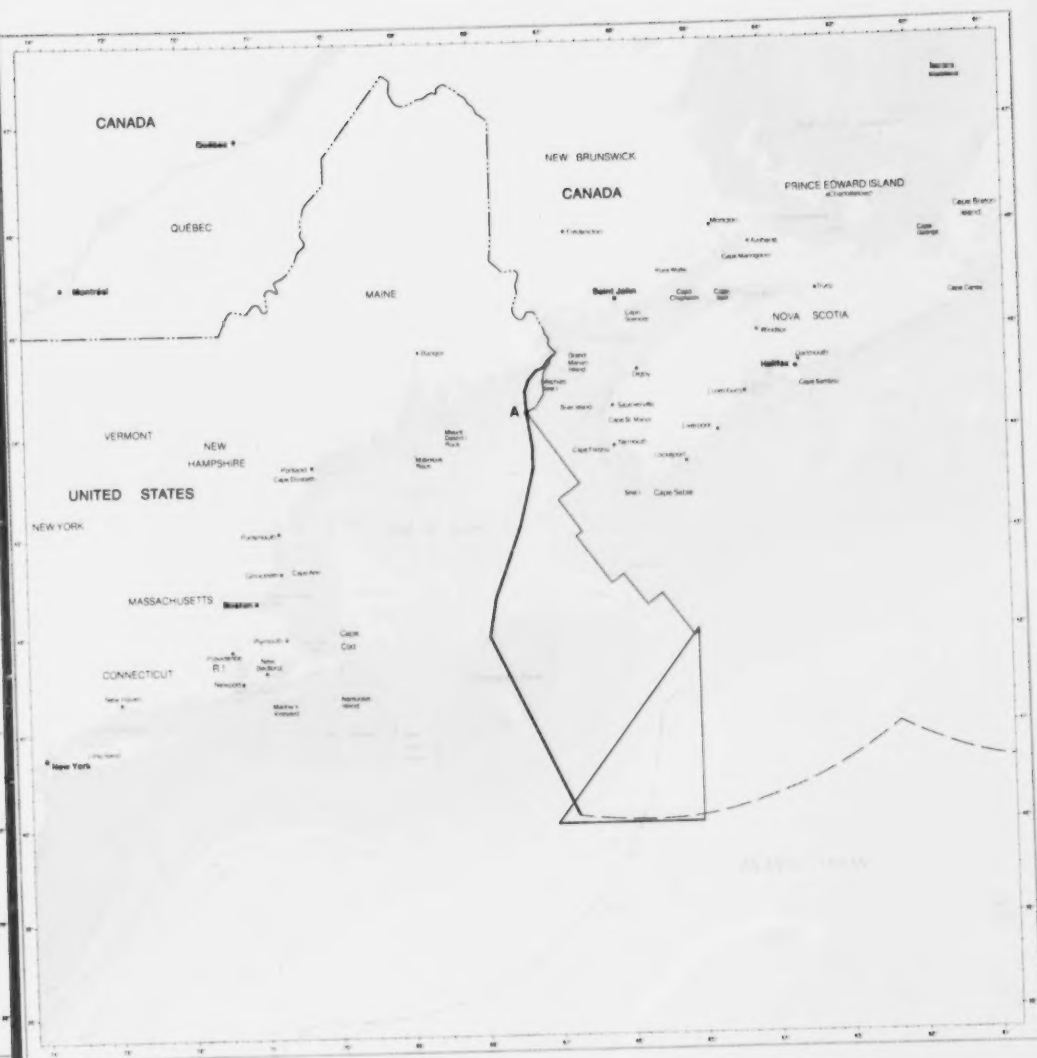


Figure 97
The Canadian Line
and the 1982 United
States Boundary
Proposal

Depths in Meters
Projection: Mercator
Scale: 1:4,700,000 at 41°N

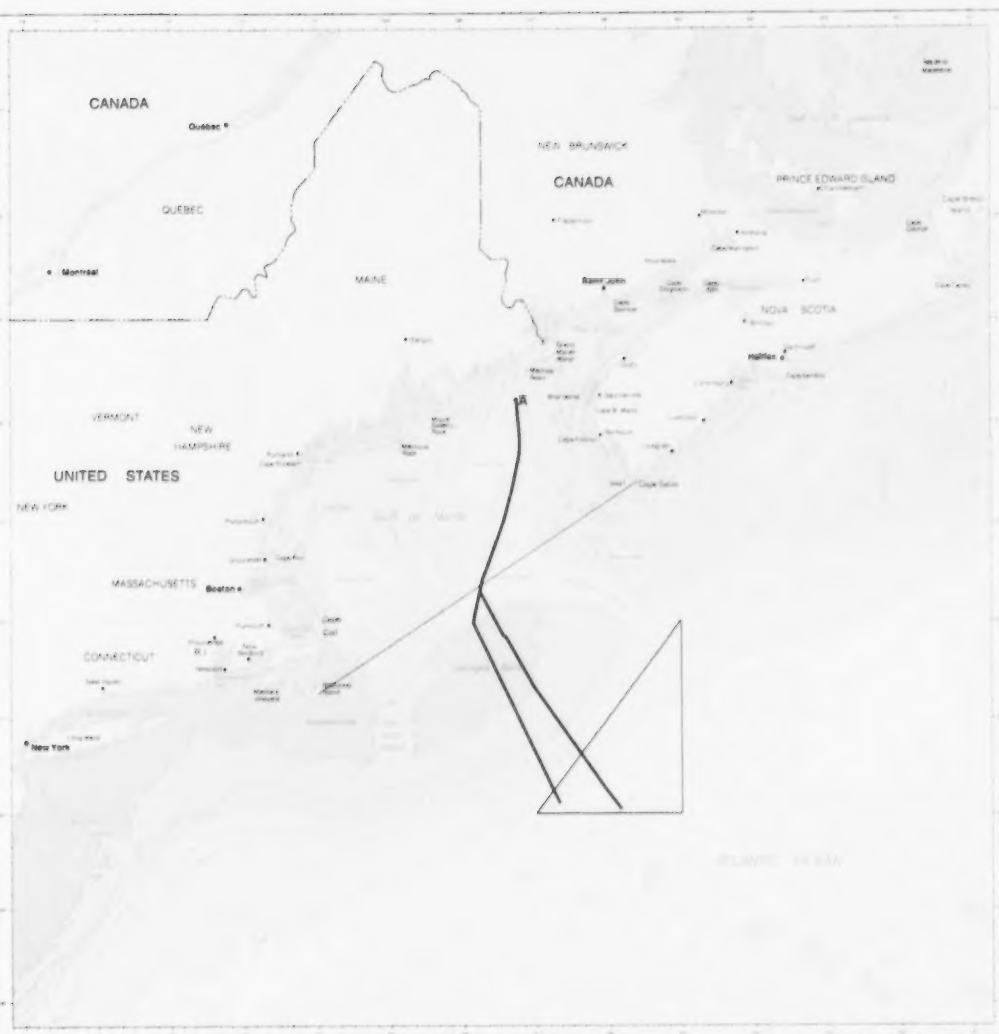
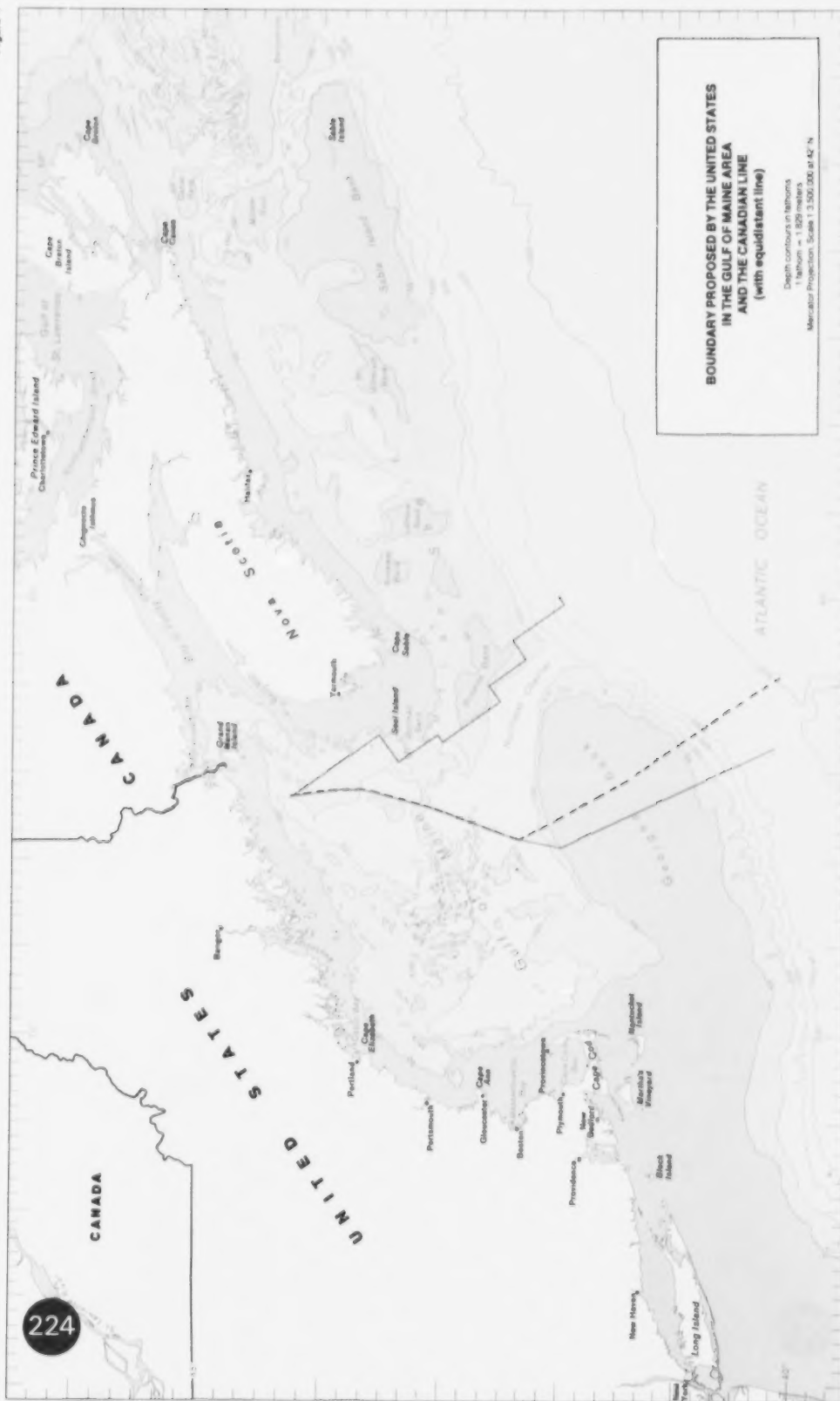
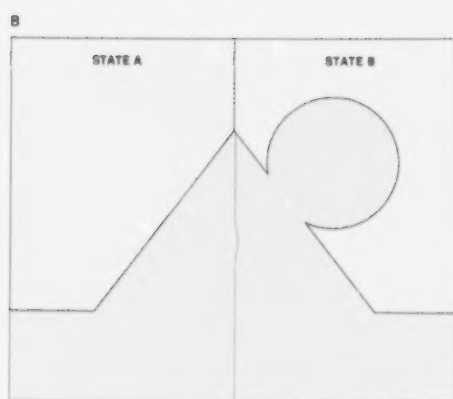
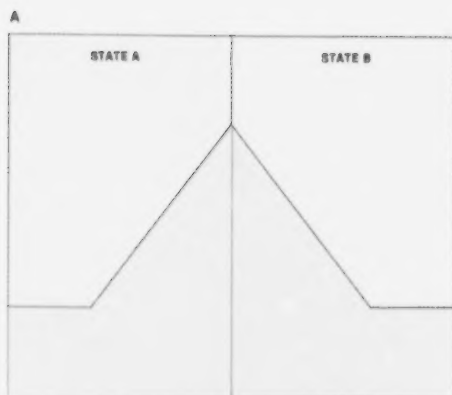


Figure 104
The Canadian Line,
the Strict Equi-
distance Line and
the Hypothetical Gulf
of Maine Closing
Line

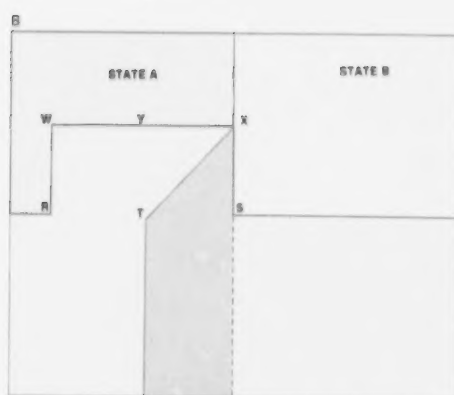
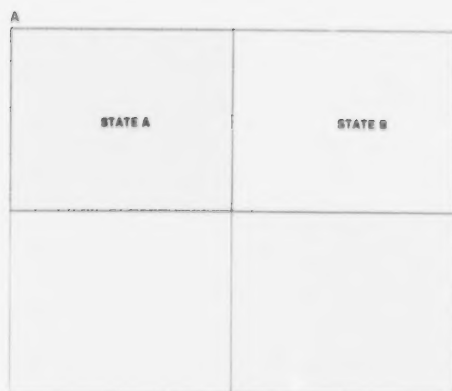
Canadian line
Strict equidistance line
Hypothetical Gulf of Maine
closing line

Distances in Miles
Projections: Mercator
Scale: 1:4,700,000 at 45°N

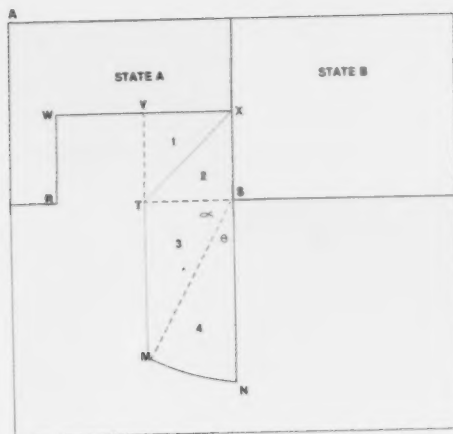




225



226



$$\begin{aligned}\text{AREA 1} &= \frac{1}{2} (xy) (yt) \\ \text{AREA 2} &= \frac{1}{2} (xs) (st) \\ \text{AREA 3} &= \frac{1}{2} (st) (tm) \\ \text{AREA 4} &= \frac{\pi r^2 (\theta)}{360^\circ}\end{aligned}$$

If $xy, xs, st, yt = 100$ units

$sm, sm = 200$ units

nm = an arc with center at s and radius 200 units

Then:

$$\text{AREA 1} = \frac{1}{2} (100) (100) = 5000 \text{ sq. units}$$

$$\text{AREA 2} = \frac{1}{2} (100) (100) = 5000 \text{ sq. units}$$

$$\text{AREA 3} = \frac{1}{2} (100) (tm)$$

$$tm = \sqrt{sm^2 - st^2} = \sqrt{200^2 - 100^2} = 173.2 \text{ units}$$

$$\frac{1}{2} (100) (173.2) = 8660 \text{ sq. units}$$

$$\text{AREA 4} = \frac{\pi (200)^2 (\theta)}{360^\circ}$$

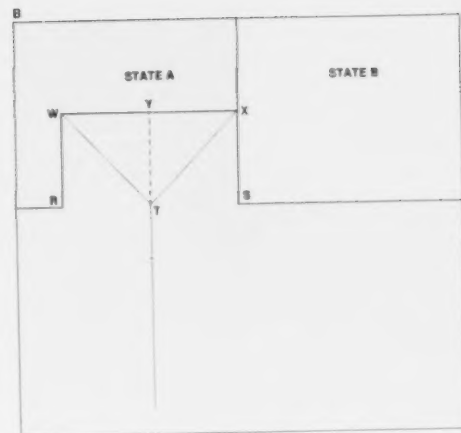
$$\theta = 90^\circ - \alpha$$

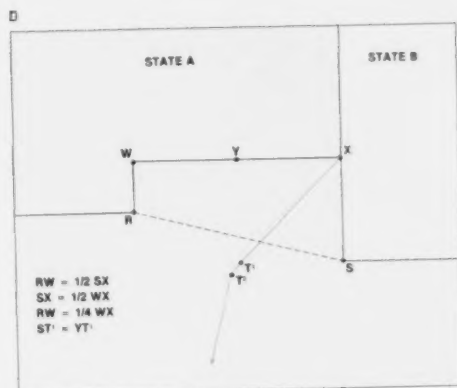
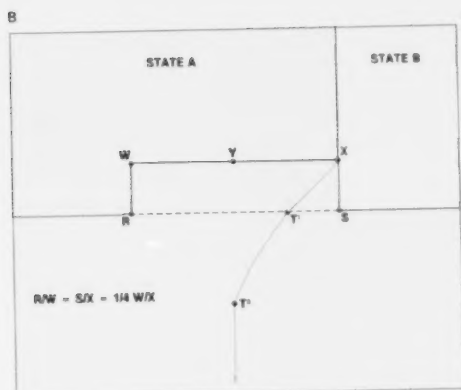
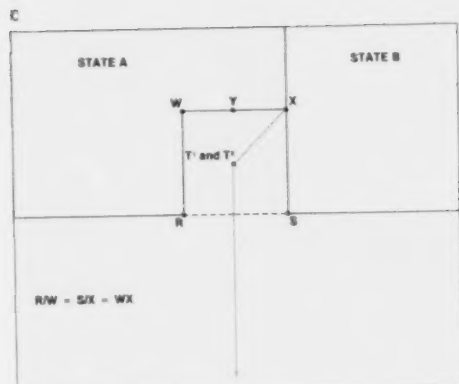
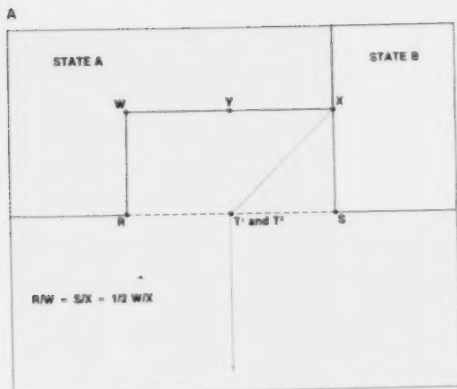
$$\cos \alpha = \frac{st}{sm} = \frac{100}{200} = 0.5$$

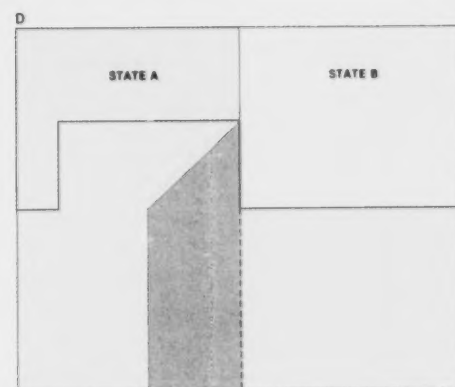
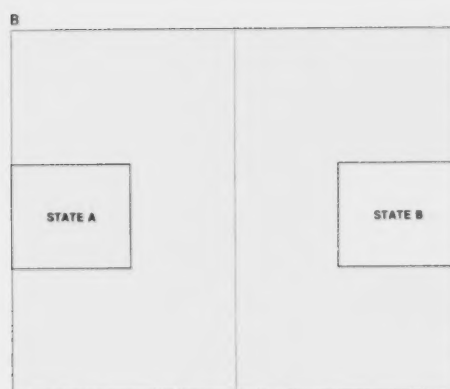
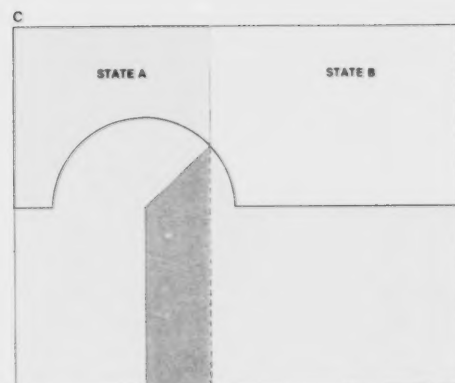
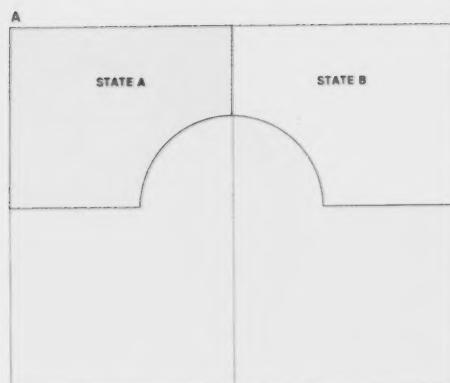
$$\alpha = \arccos (0.5) = 60^\circ$$

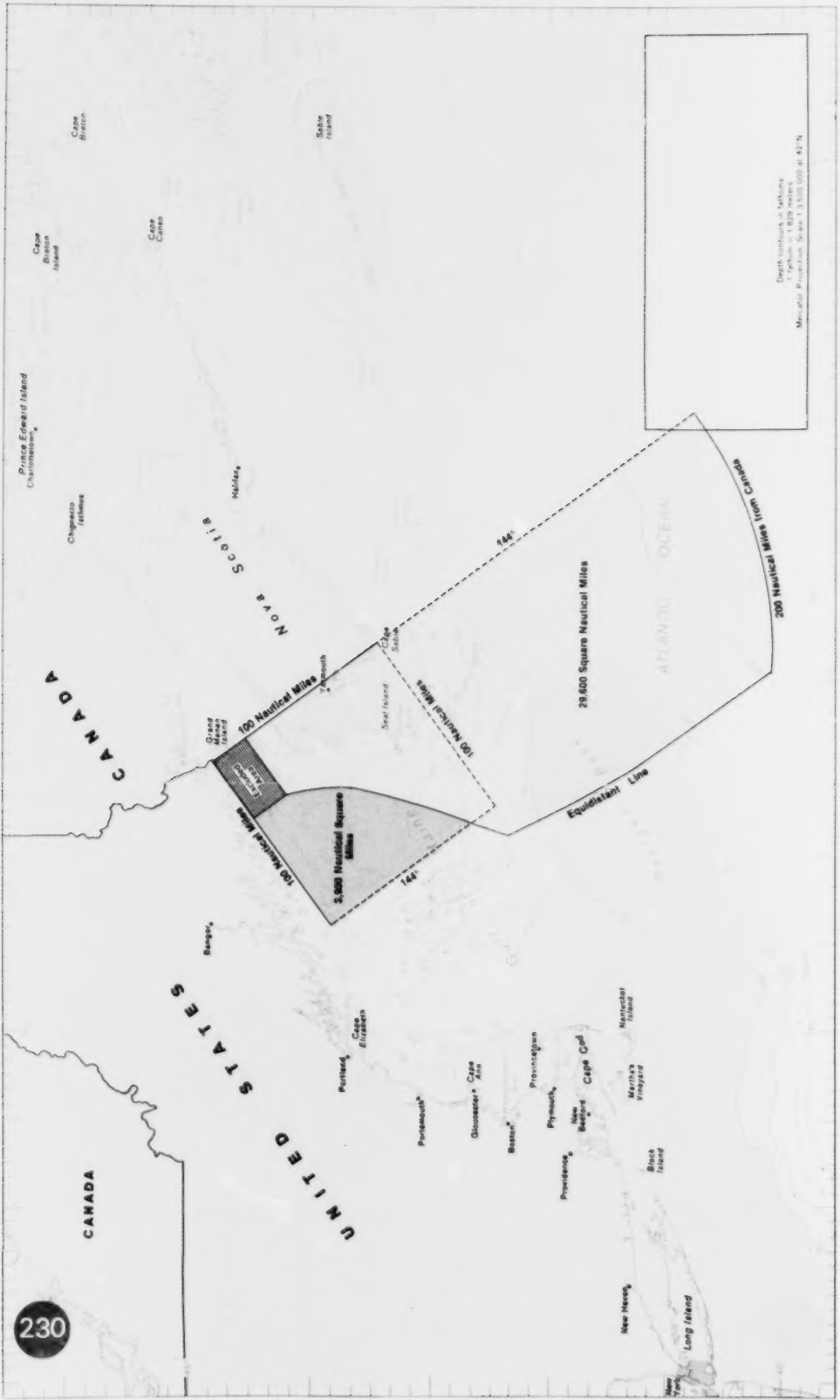
$$\theta = 90^\circ - 60^\circ = 30^\circ$$

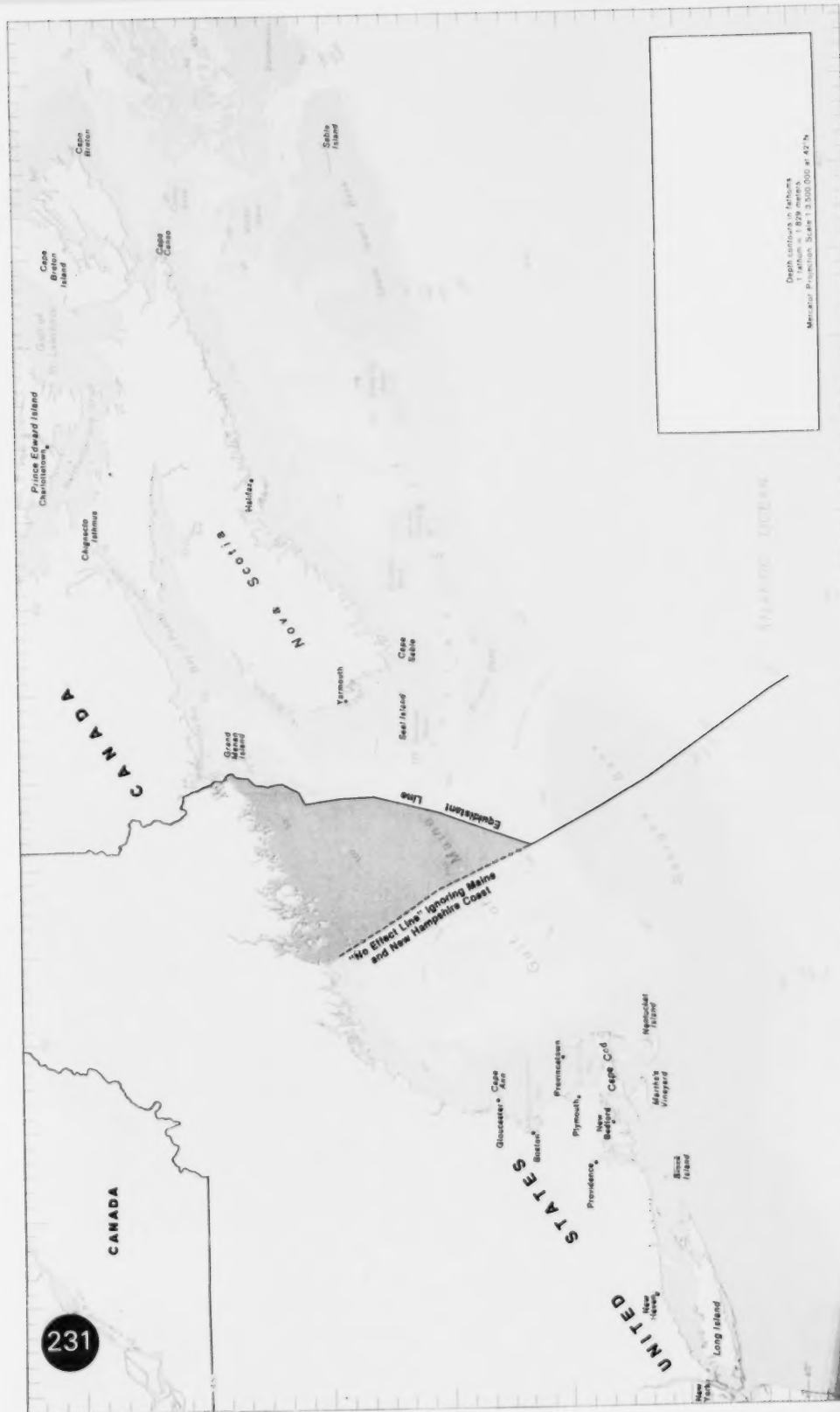
$$\frac{\pi (200)^2 (30^\circ)}{360^\circ} = 10,472 \text{ sq. units}$$

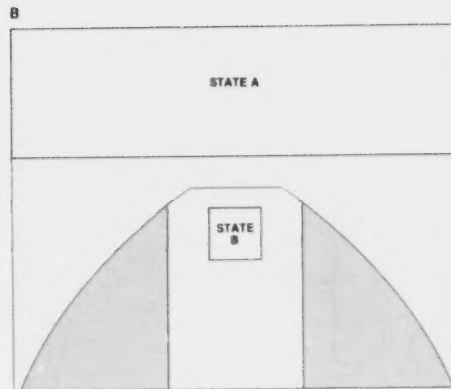
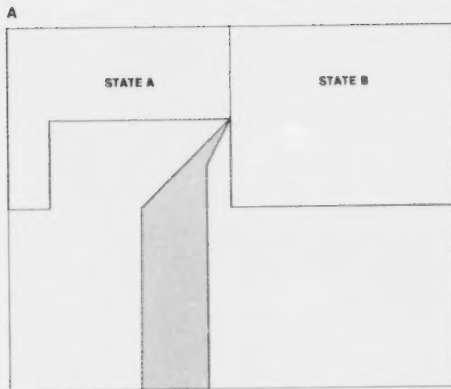




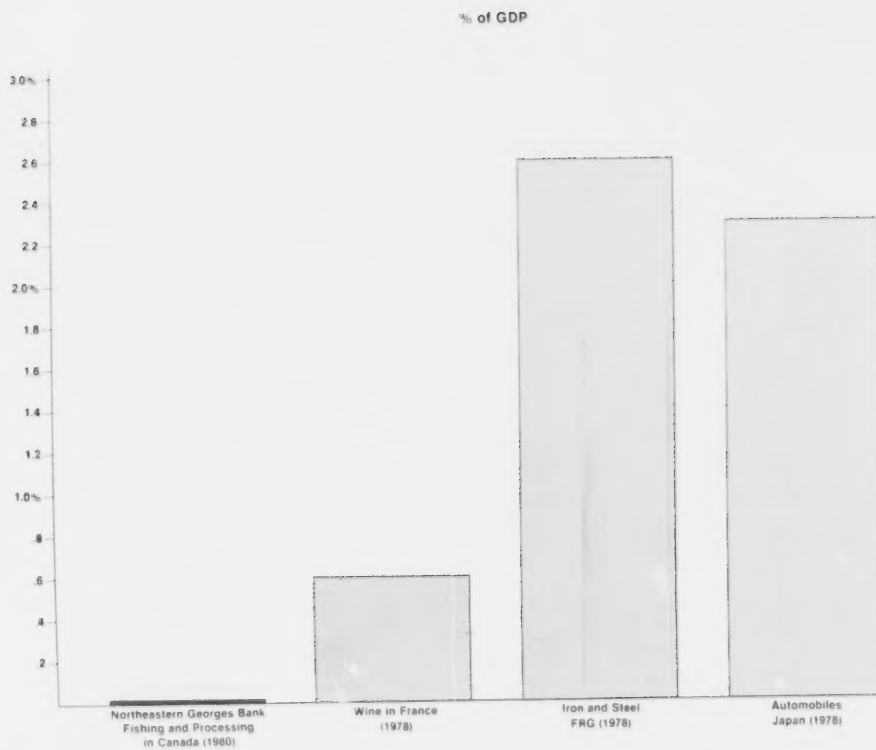








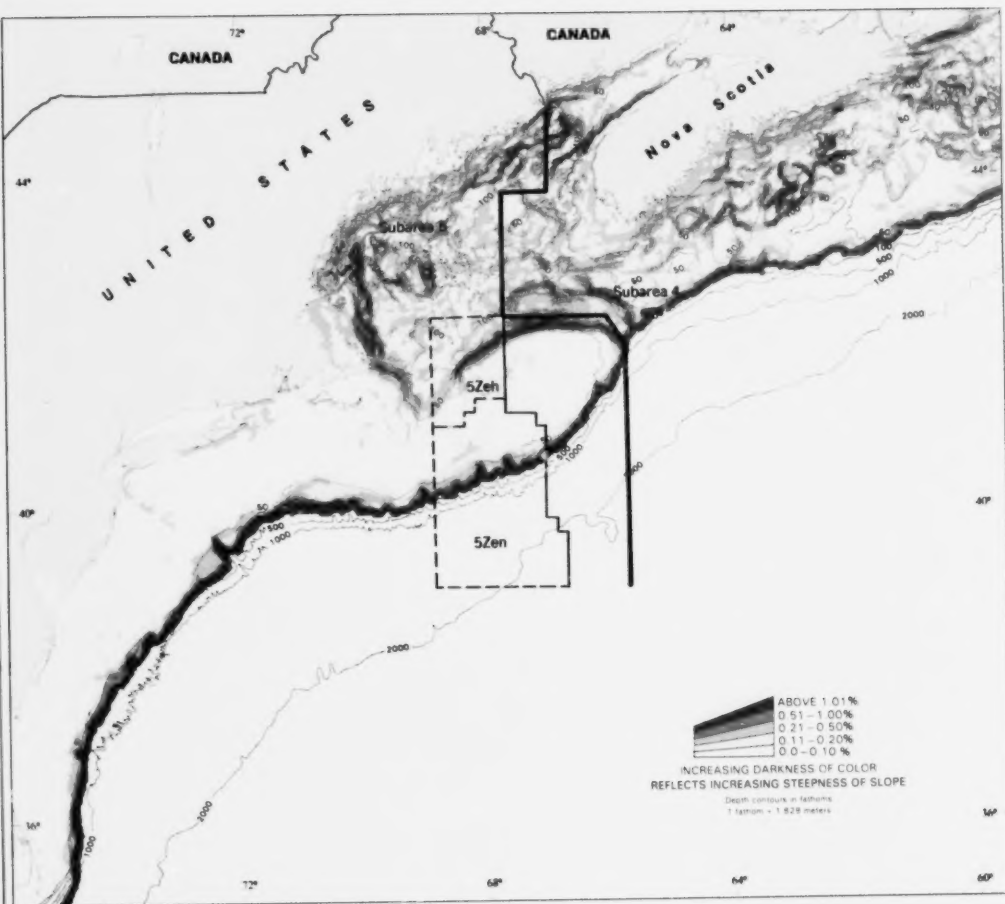
232



233

AN ILLUSTRATION OF THE PRACTICAL EFFECTS OF VERTICAL EXAGGERATION USING THE TOPOGRAPHY OF NORTH AMERICA

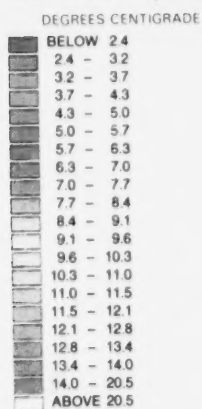




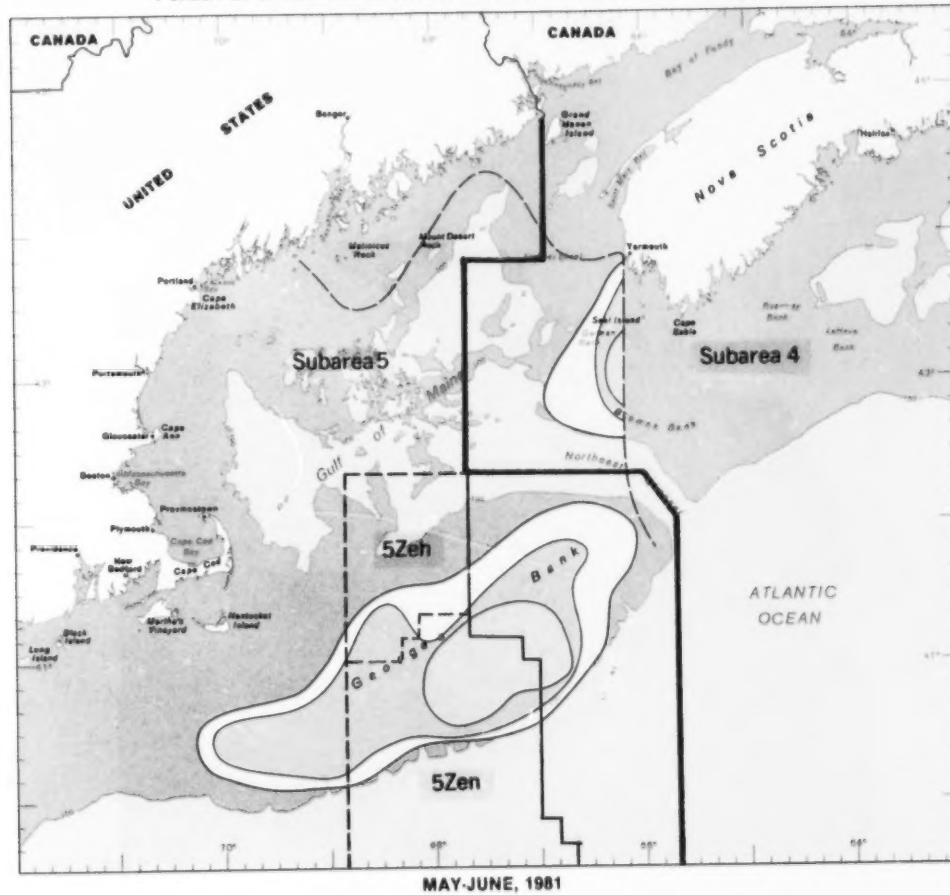
SEABED GRADIENTS — THE RATE OF DESCENT



Surface temperatures with temperature gradients — 14 June 1979



Portion of United States Counter-Memorial, Vol. I, Annex I, Figure 36



DISTRIBUTION OF HADDOCK LARVAE

- 1 - 10
- 11 - 100
- 101 - 1000

Number of Larvae per 10 Square Meters of Surface Area

--- Eastern Limit of Sampling

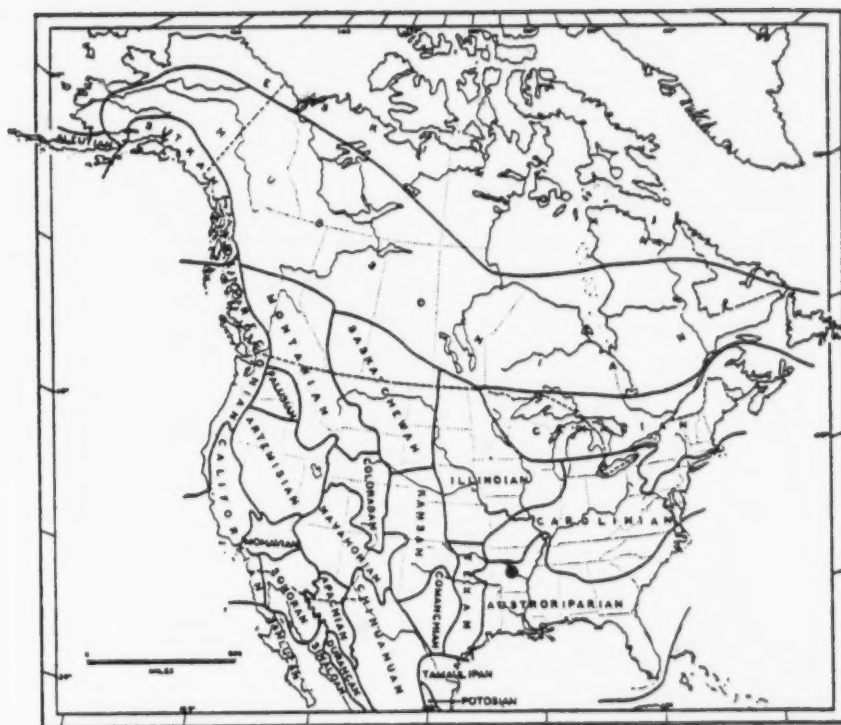


FIG. 50. The biotic provinces of part of North America. (After Dice, 1943, by permission of the Univ. Mich. Press.)



Figure 121
Coastal Front
Extensions in the
Gulf of Maine Area:
Inner Area

Depicts in Maines
Protection - Maines
Scale - 1:1,000,000 at 41°N



Figure 122
Coastal Front
Extensions in the
Gulf of Maine Area:
Outer Area

Depth in Meters
Projection - Mercator
Scale - 1 : 700 000 at 41°N

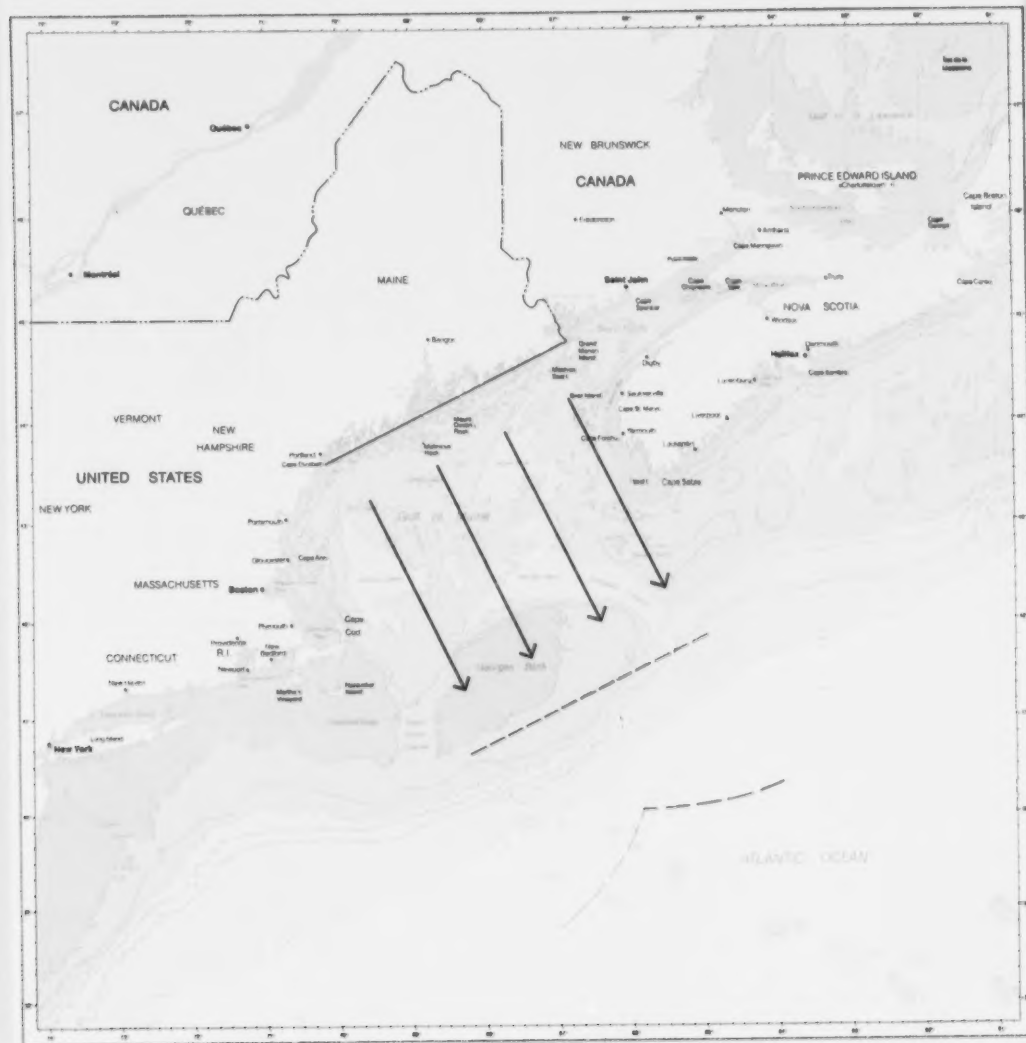


Figure 123
United States
Concept of the
Perpendicular
Extension of the
Coast of Maine

Depicts in Map
Projection: Mercator
Scale: 1:4,750,000 at 41°N

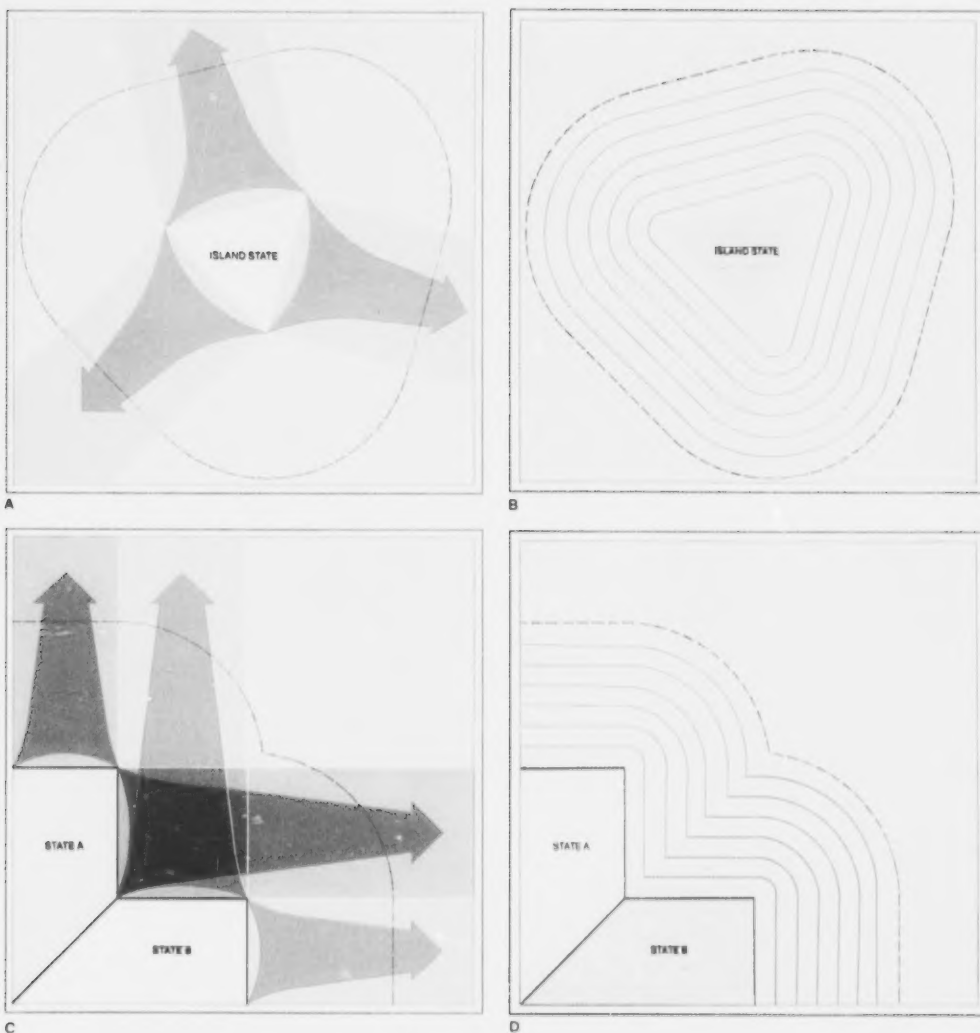


Figure 131
Seaward
Extensions
Perpendicular to
Coastal Fronts in
the Manner
Depicted in Figure
31 of the United
States Memorial
Compared to the
Radial Extension of
the Coast as
Described in
Paragraphs 150 to
152 and 564 to 568
of the Canadian
Counter-Memorial

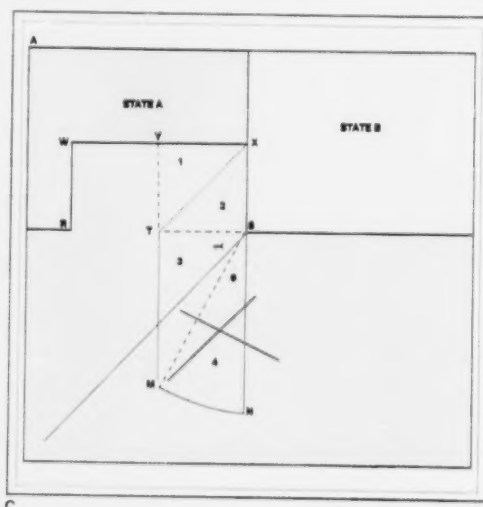
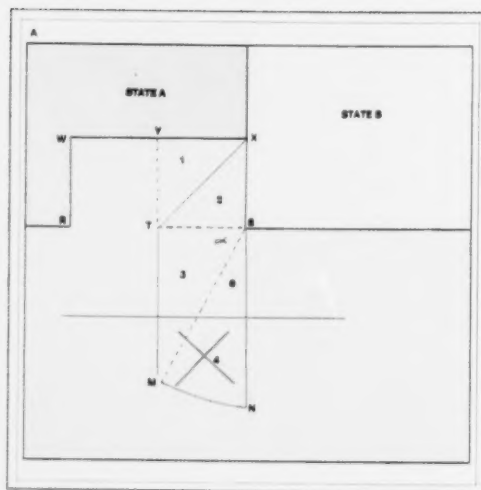
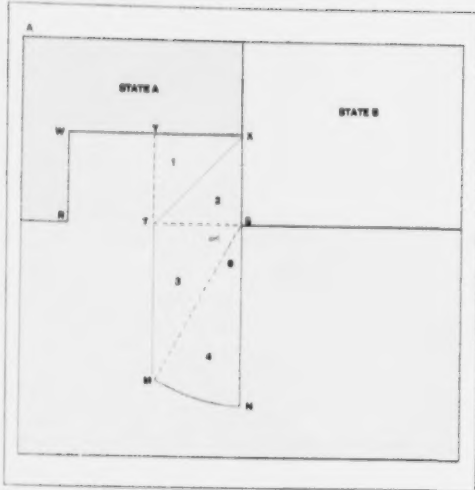


Figure 138
United States
Oral Proceedings,
Figure 12 Corrected

The corrections to this Figure are made within the legal and geographical framework on which the United States cut-off model is based. Because Canada does not accept that this constitutes the correct legal and geographical framework for assessing whether an inequitable cut-off occurs, Canada does not accept any conclusions of equity or law which might be drawn from this corrected Figure.



Figure 142
The 1982 United States Boundary Proposal, Point A and the Triangle

Digitized by MapInfo
Projection - Mercator
Scale - 1:6,750,000 at 41°N



Figure 143
Tripoint (Turning
Point 50) of the
Canadian Line

Depths in Meters
Projection: Mercator
Scale: 1:4 700 000 at 41°N

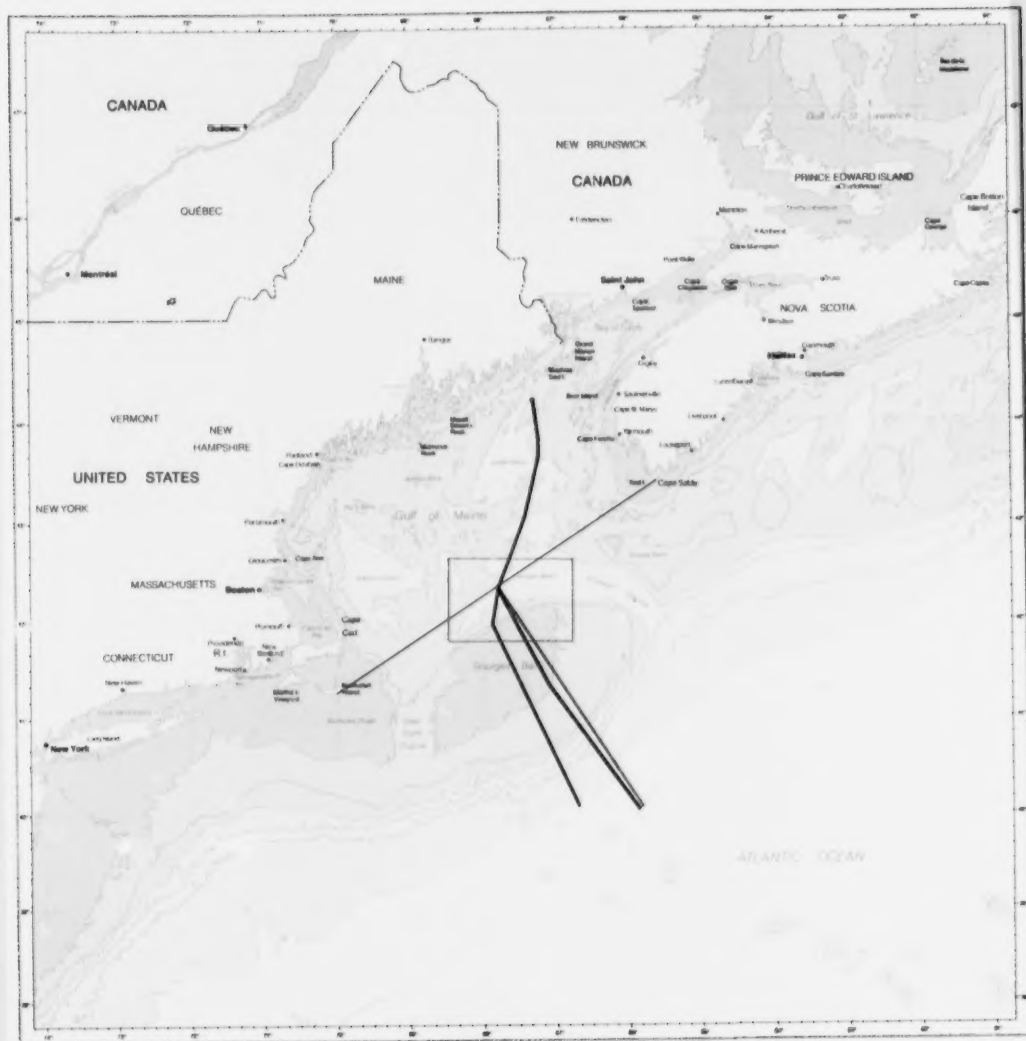


Figure 144
 The Canadian Line
 Compared to a
 Perpendicular to
 the Hypothetical
 Gulf of Maine
 Closing Line at its
 Midpoint

Depth in Meters
 Projection - Mercator
 Scale - 1:4,700,000 at 41°N

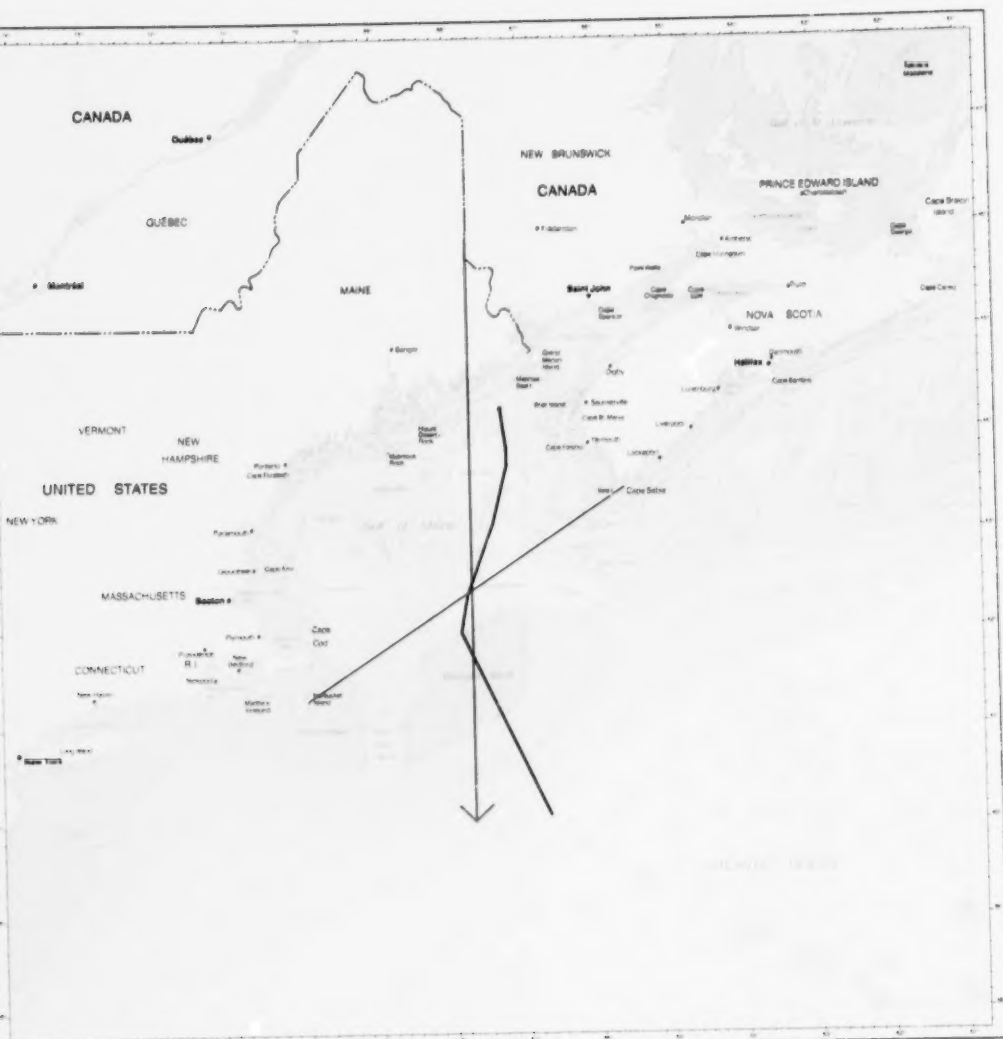


Figure 148
The Canadian Line,
The Due North Line
and the Hypothetical
Gulf of Maine
Closing Line

Digitized in Matrix 1
Projection: Mercator
Scale: 1:4 700 000 at 41°N

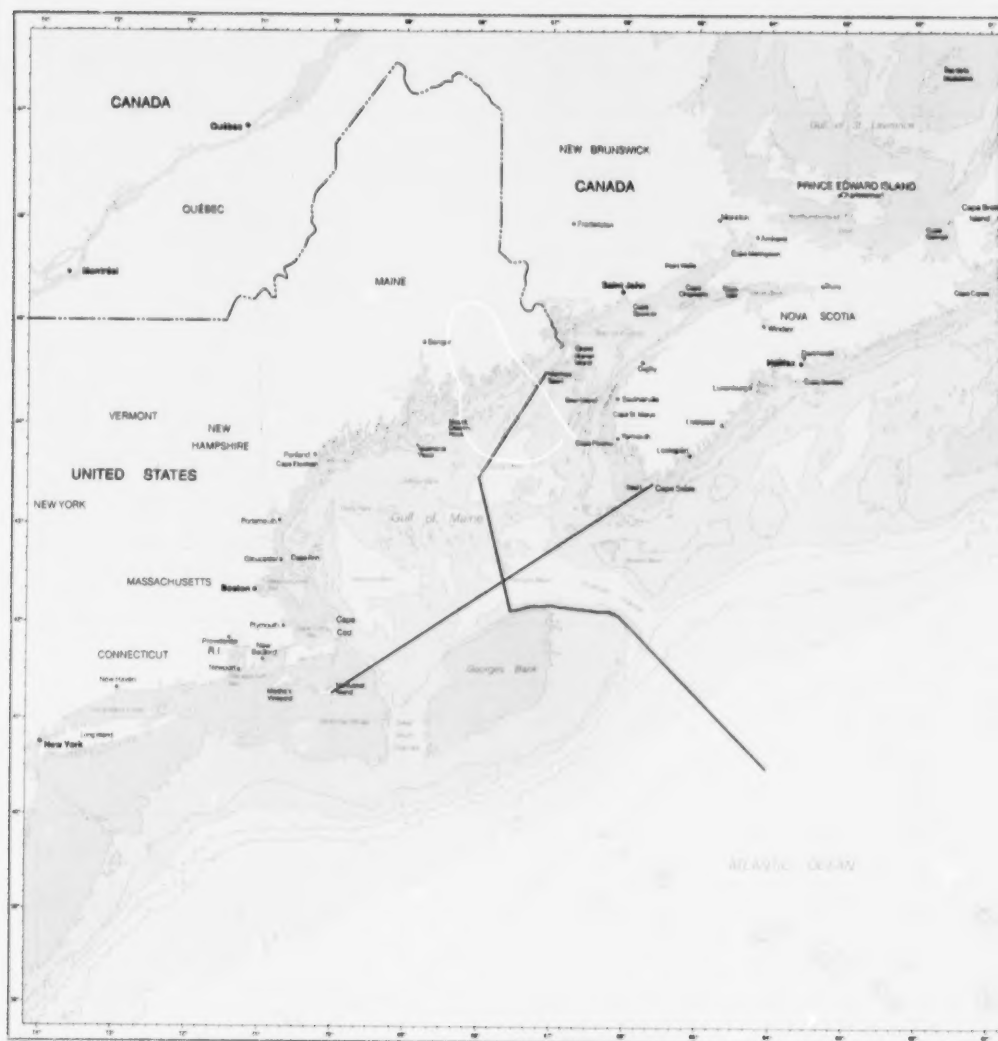


Figure 149
 The United States
 Law Enforcement
 Line to Protect the
 Lobster of the
 United States
 Continental Shelf
 (United States
 Memorial, Figure 16)
 and the Hypothetical
 Gulf of Maine
 Closing Line

Depth in Meters
 Projection - Mercator
 Scale - 1:4,700,000 at 41°N



Figure 150
Points of
Convergence

- 1: Turning Point 50 (Tripoint) of the Canadian Line
- 2: Turning Point 45 (Tripoint) of the Strict Equidistance Line
- 3: Tripoint of the Equidistance Line drawn from the Coastal Fronts as defined by Canada (Canadian Counter-Memorial Figure 50)
- 4: Point of Intersection of the Due North Line (67° 47' West Longitude) and the Hypothetical Gulf of Maine Closing Line
- 5: Point of Intersection of the United States "Lobster Line" (United States Memorial Figure 16) and the Hypothetical Gulf of Maine Closing Line
- 6: The Midpoint of the Hypothetical Gulf of Maine Closing Line

Depths in Meters
Projection - Mercator
Scale - 1:3,240,000 at 41° N



Figure 151
The Implications
of the Direction
of the Boundary
in the Outer Area
for the Allocation
of Maritime Space

Depth in Meters
Projection: Mercator
Scale: 1:100,000 at 41°N

Figure 155

The Relevant Fishing Coasts: Georges Bank

 Nova Scotia coastal wing ports
 Bay of Fundy ports
 Maine-New Hampshire ports
 Massachusetts-Rhode Island coastal wing ports

Note: Canadian statistics were not collected by fishery districts prior to 1964. All catches are recorded in round weight.

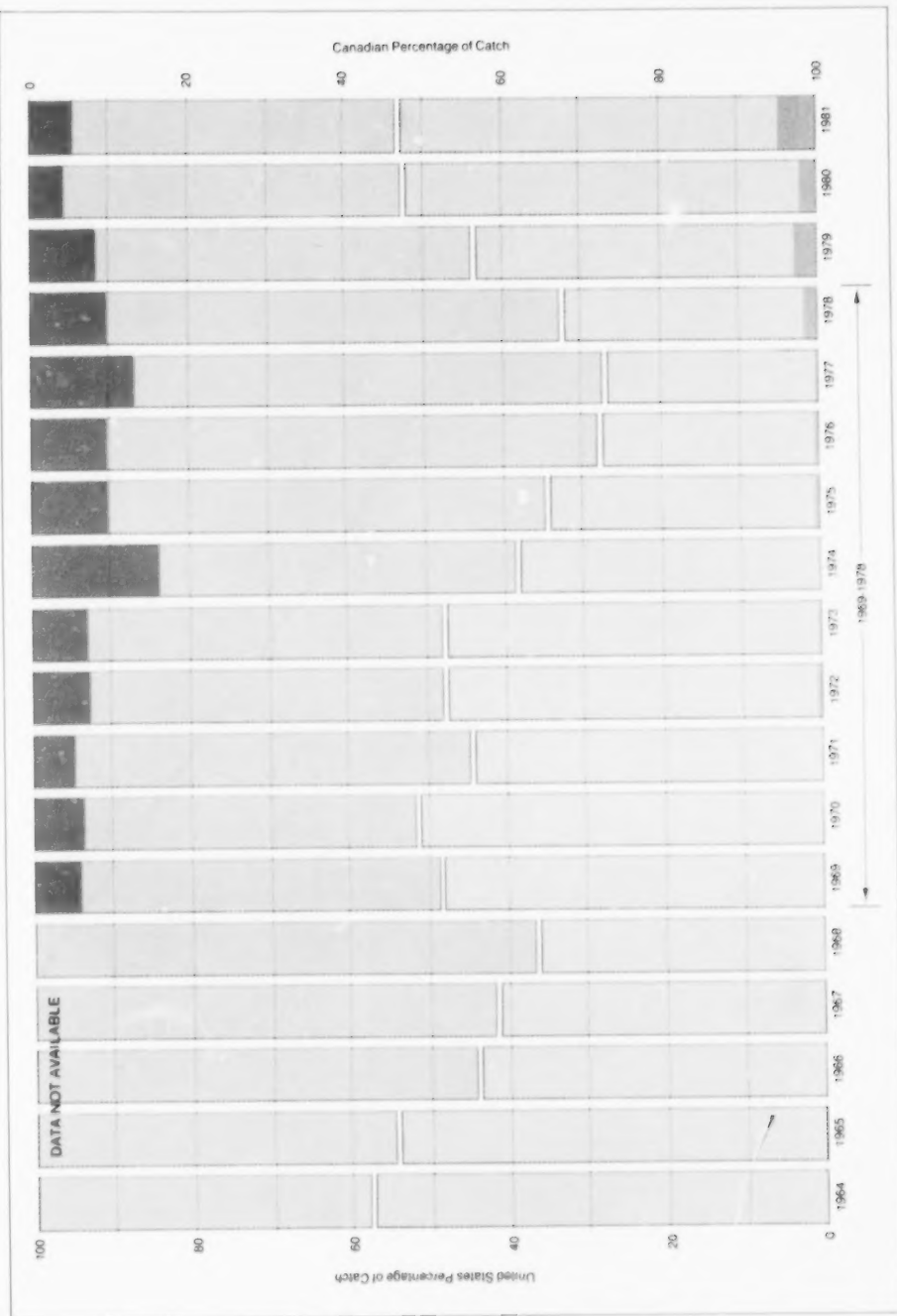




Figure 160

Composite Map
Depicting Seismic
Lines Shot Under
Digicon Group
Surveys: 1969-1975



BLM line



Company equidistance line



400 lines shot pursuant to
United States permits E2-69
and E1-70



500 lines shot pursuant to
extension of United States
permit E1-70



600 lines shot pursuant to
United States permit E1-71



700 and 700XU lines shot
pursuant to United States
permit E2-72



D900 lines shot pursuant to
United States permit E1-74



D100 lines shot pursuant to
United States permit E3-75

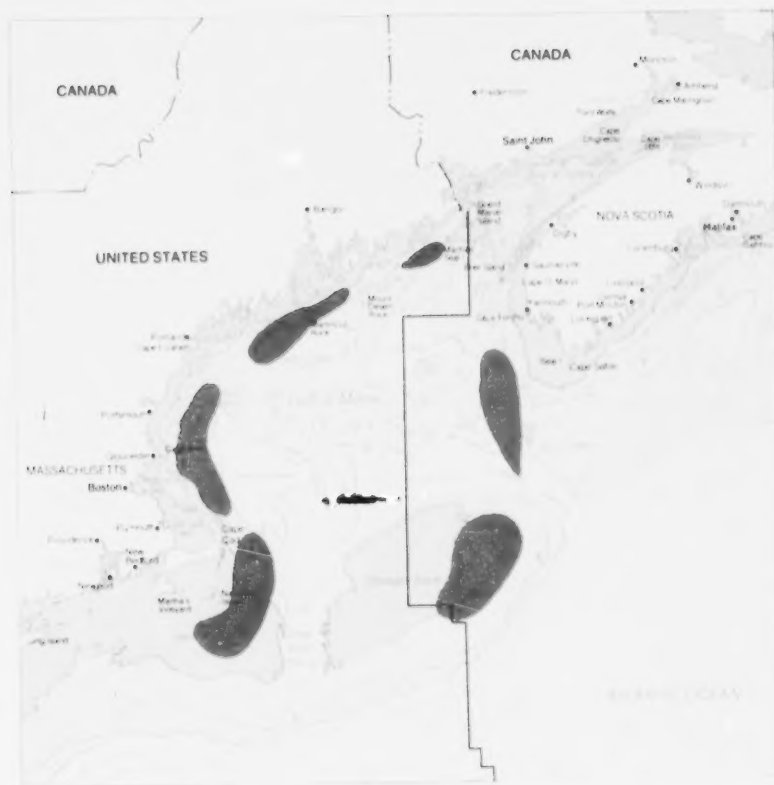


Figure 166

The Statistical Unit Line and Concentrations of Cod, Haddock and Scallops on Georges Bank

Depths in Metres
Projection—Mercator
Scale—1:7 300 000 at 41°N

A
Spawning concentrations
of cod
Source: *United States Oral
Proceedings, Figure 77*

B
Spawning concentrations
of haddock
Source: *United States Oral
Proceedings, Figure 77*

C
Concentrations of scallops
Source: *New England and
South Atlantic Fishery
Management Councils Final
Environmental Impact
Statement for Fishery
Management Plan for
Scallops, January 1982*

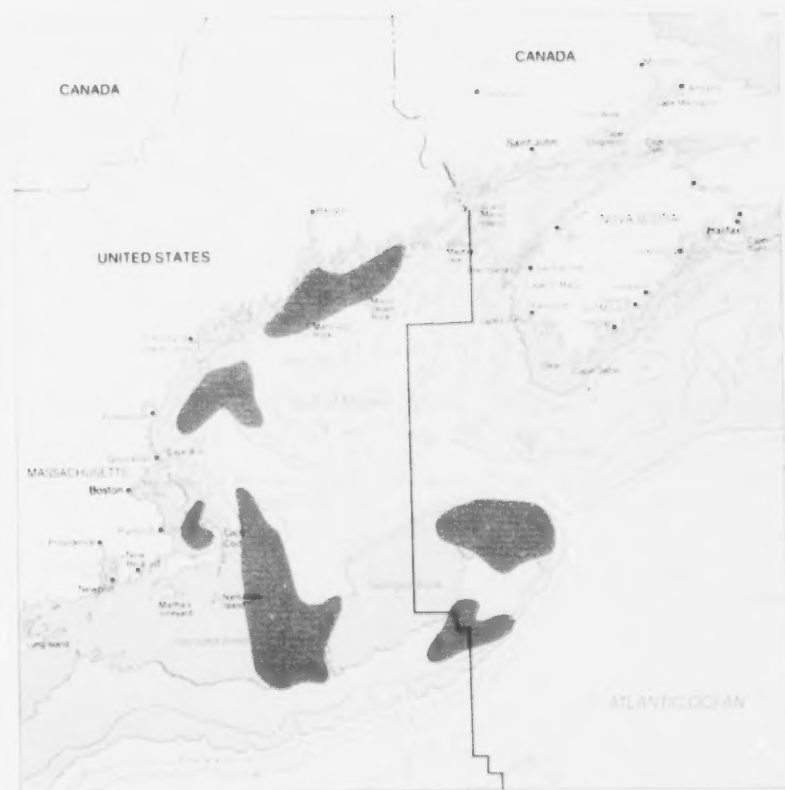
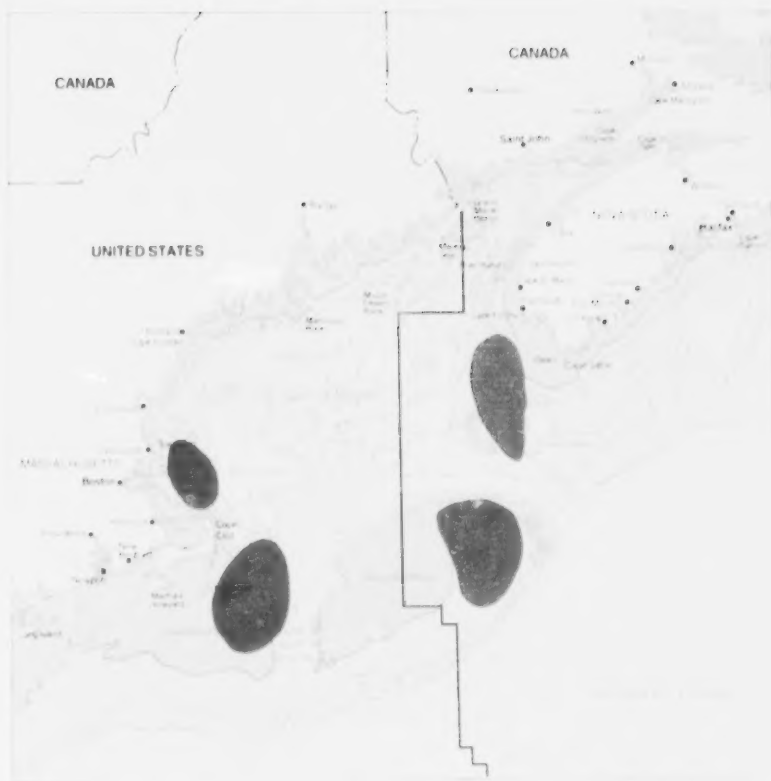


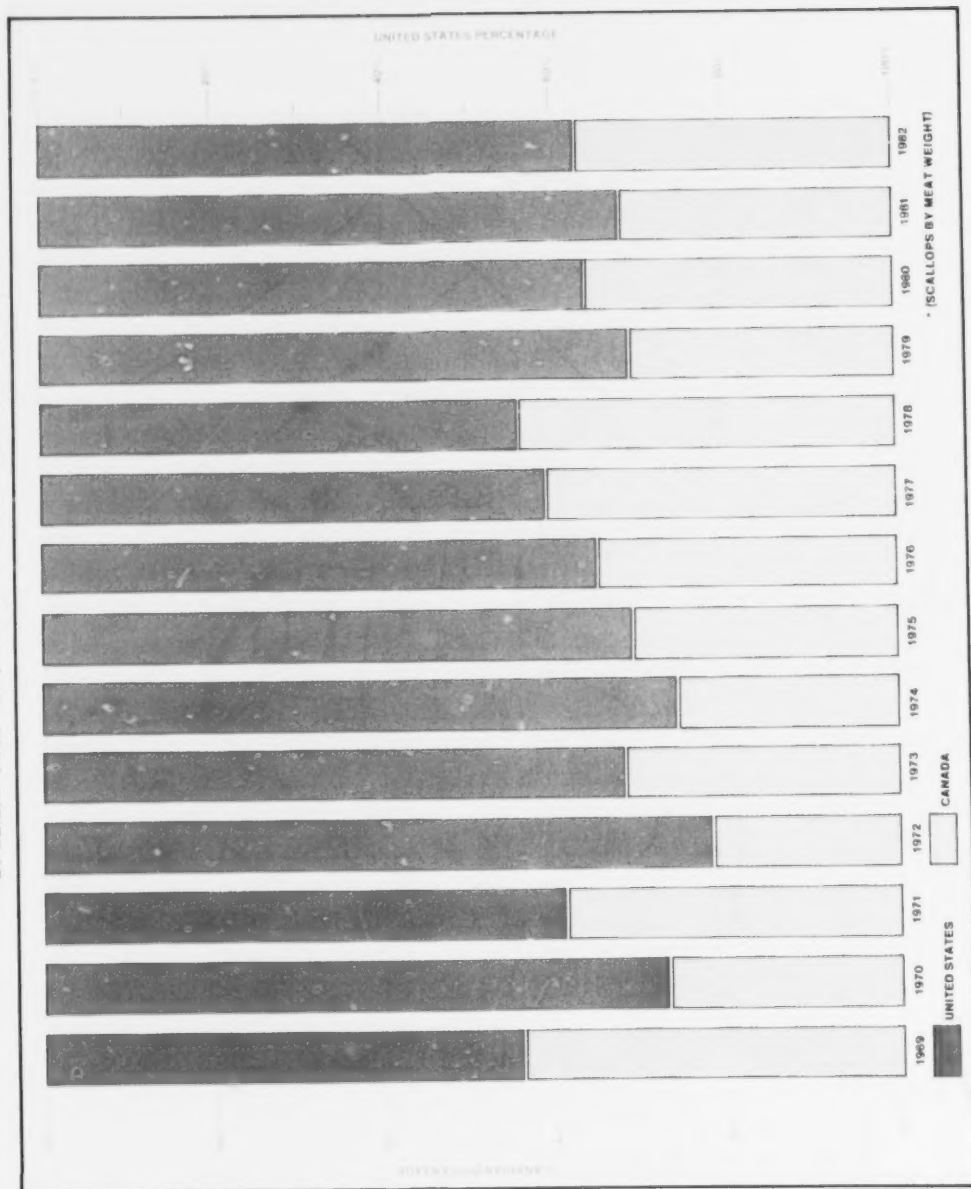


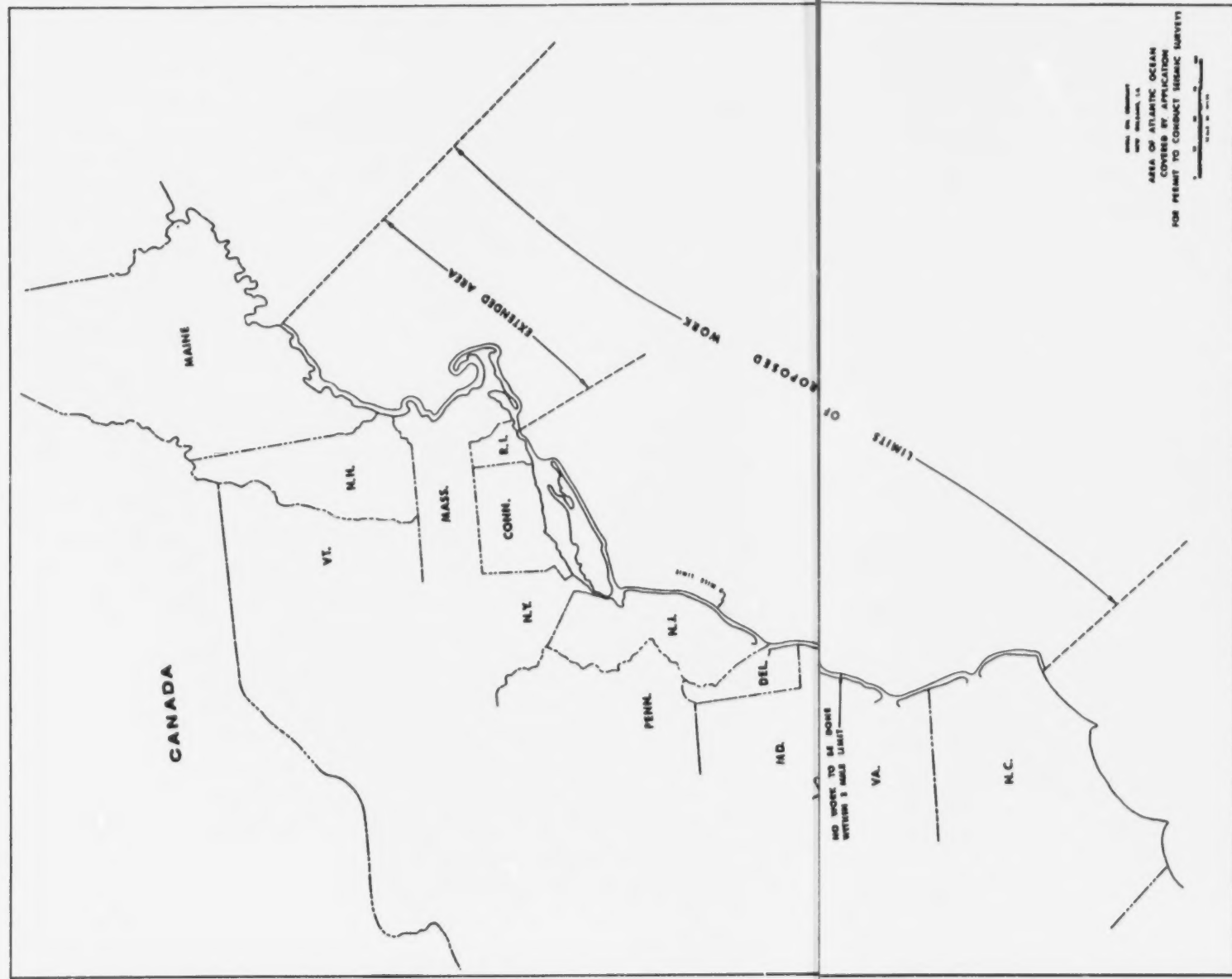
Figure 171

**Canadian Proportionality Model A
Including Only the
Bay of Fundy Coast
That "Faces" the
"Area in Which the
Delimitation is
to Take Place"**

Coastal lengths:	
Canada	250½ NM
United States	369 NM
Ratio	40:60

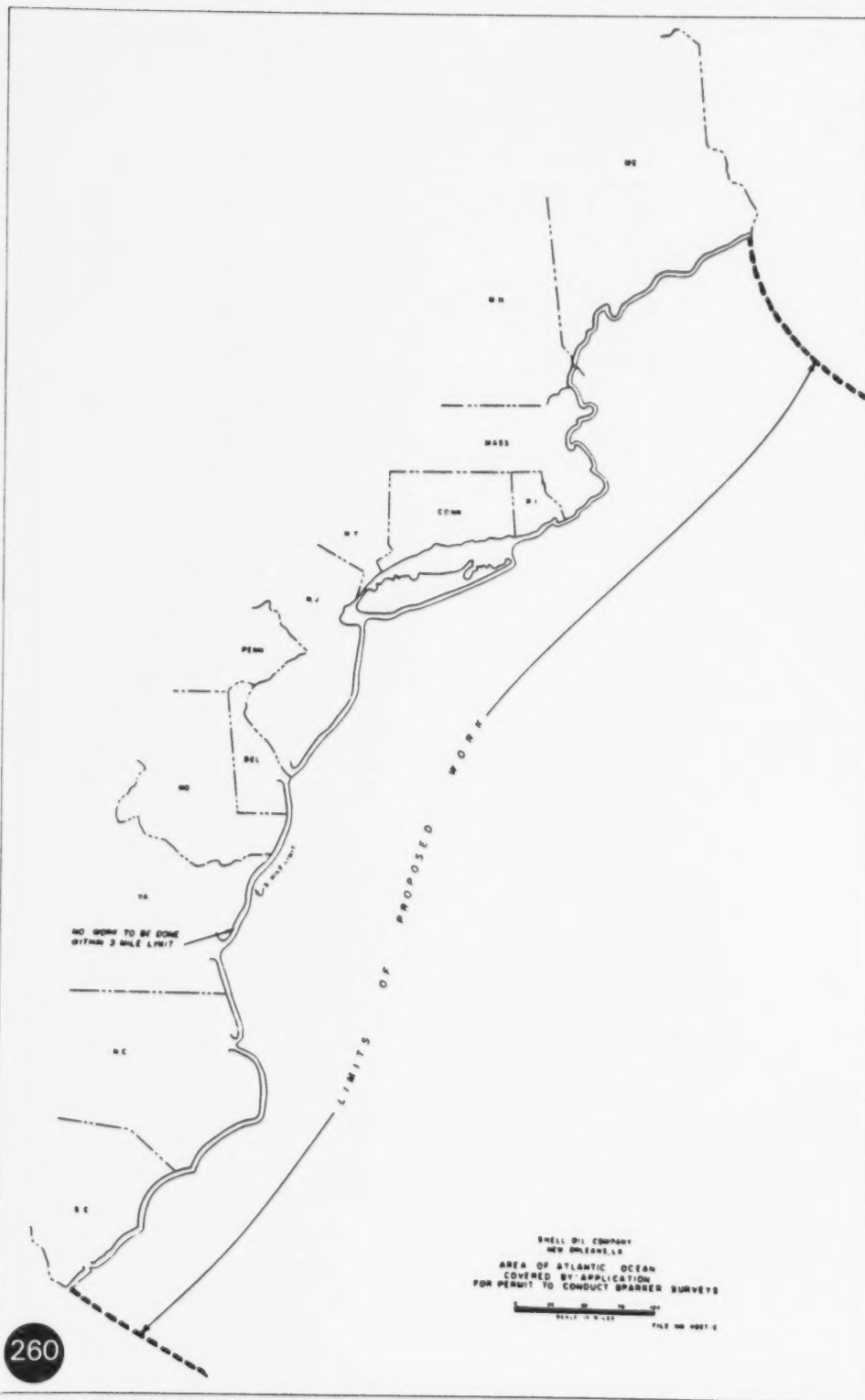
Sea areas divided by the Canadian Line:	
Canada	45035 SNM
United States	63657 SNM
Ratio	41:59

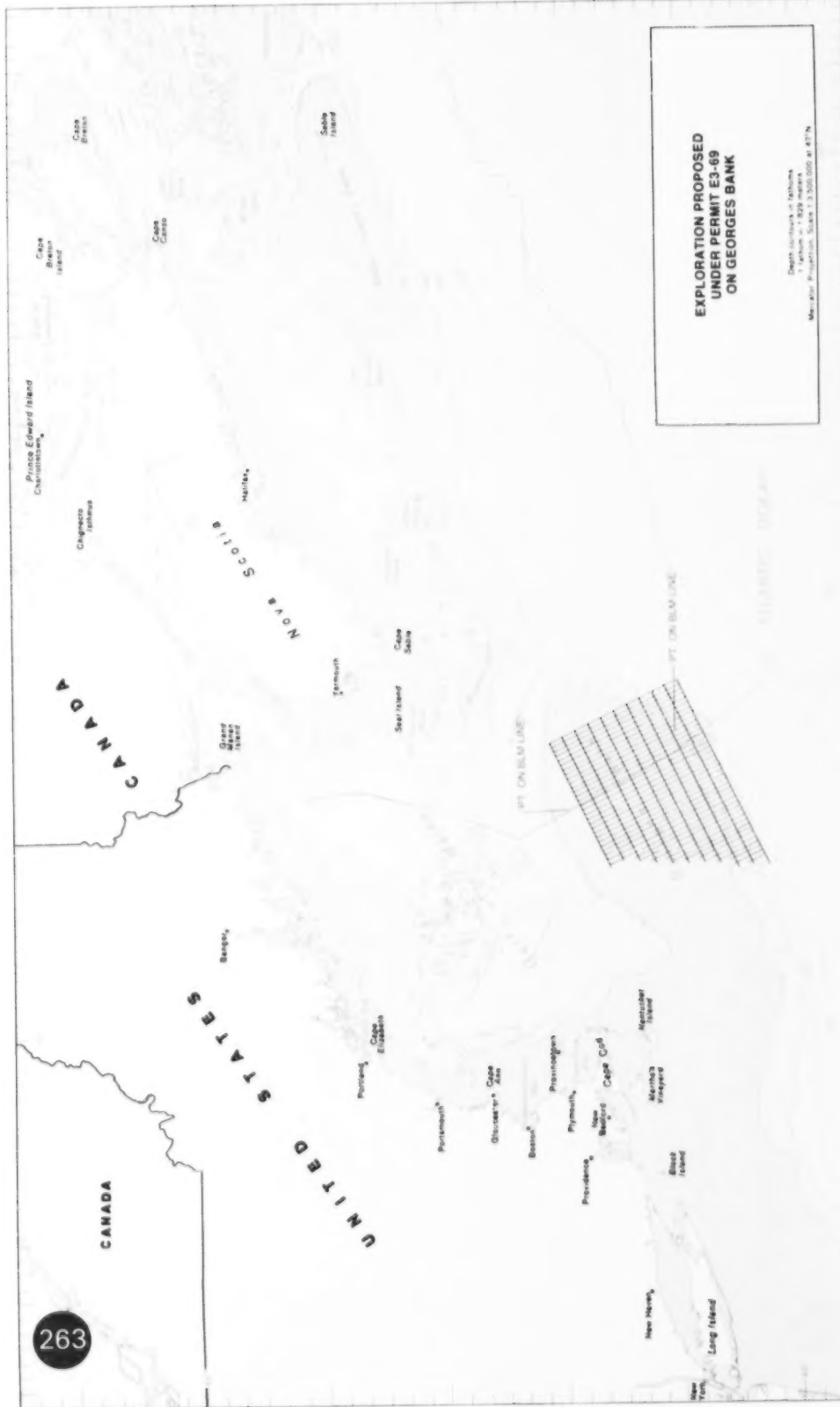


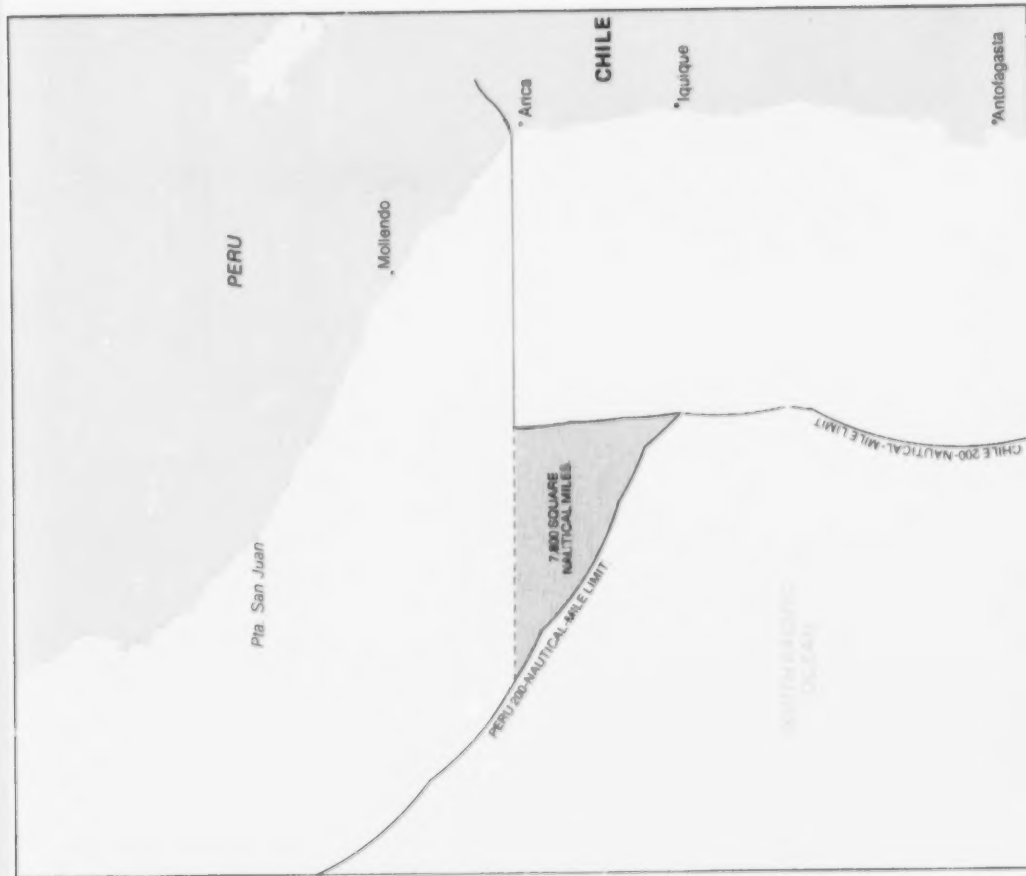


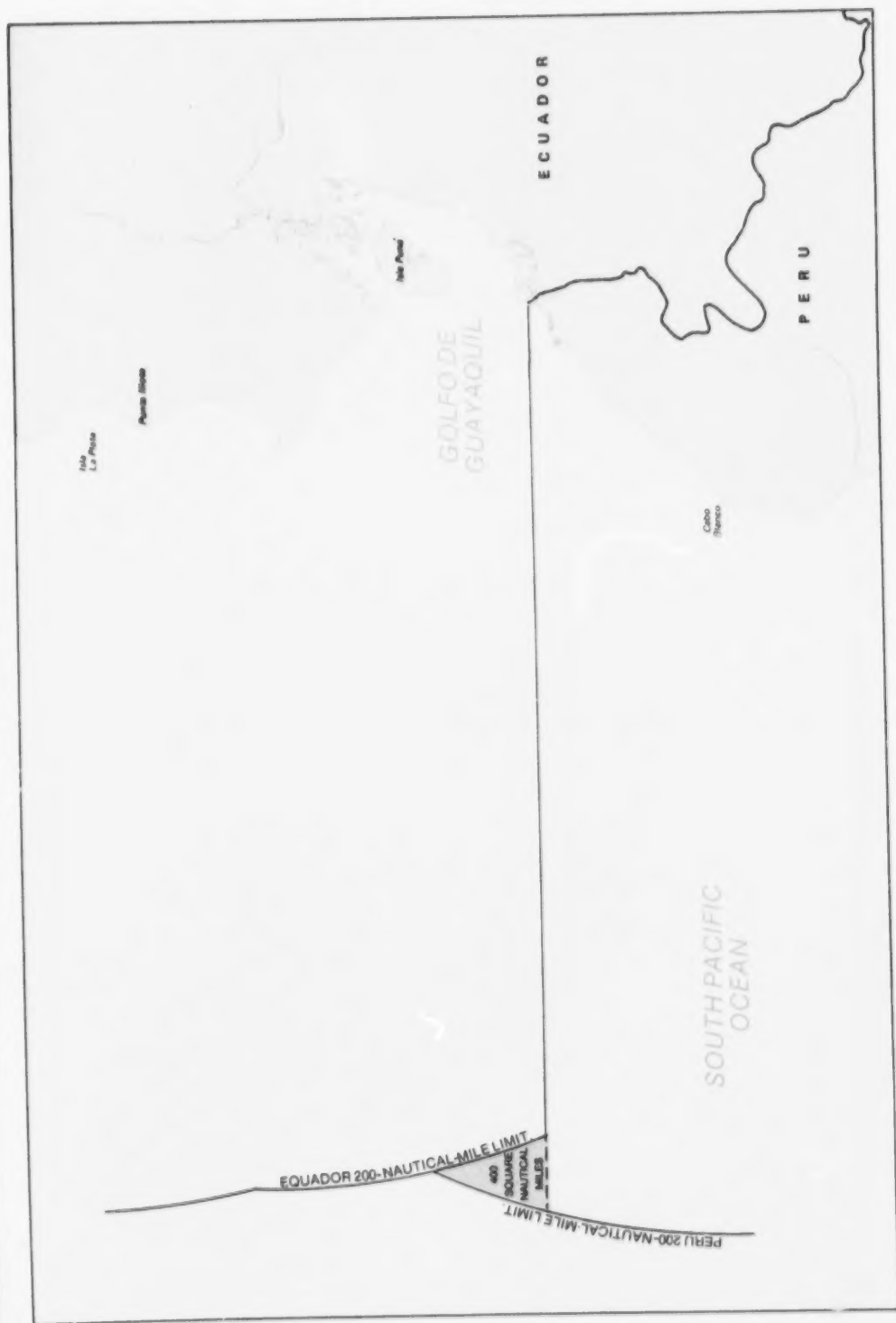
AREA OF ATLANTIC OCEAN COVERED BY APPLICATION FOR PERMIT E1-65
(Reproduced from Application)

Depth contours in fathoms
1 fathom = 1.829 meters
Mercator Projection Scale 1:3 500 000 at 42°N

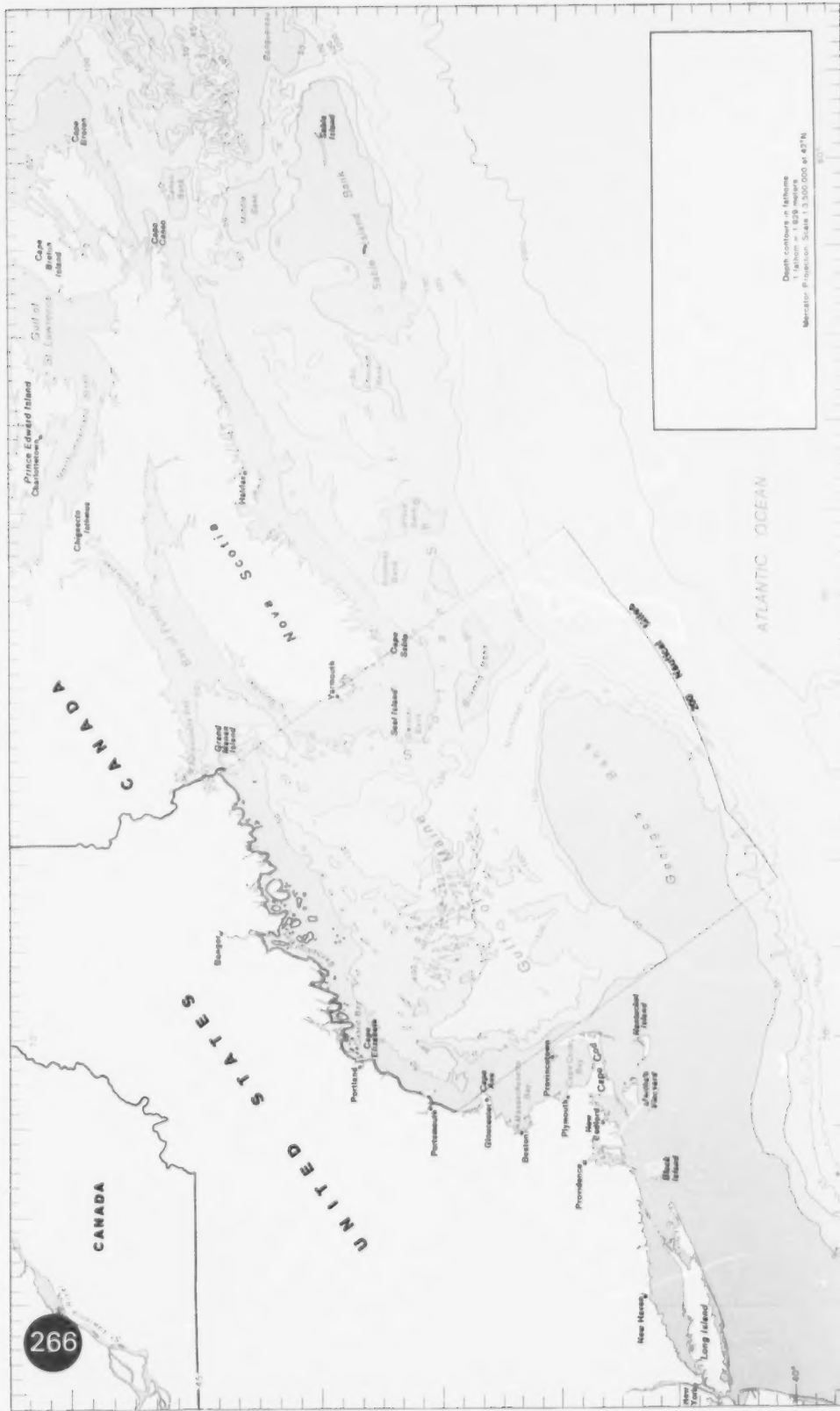


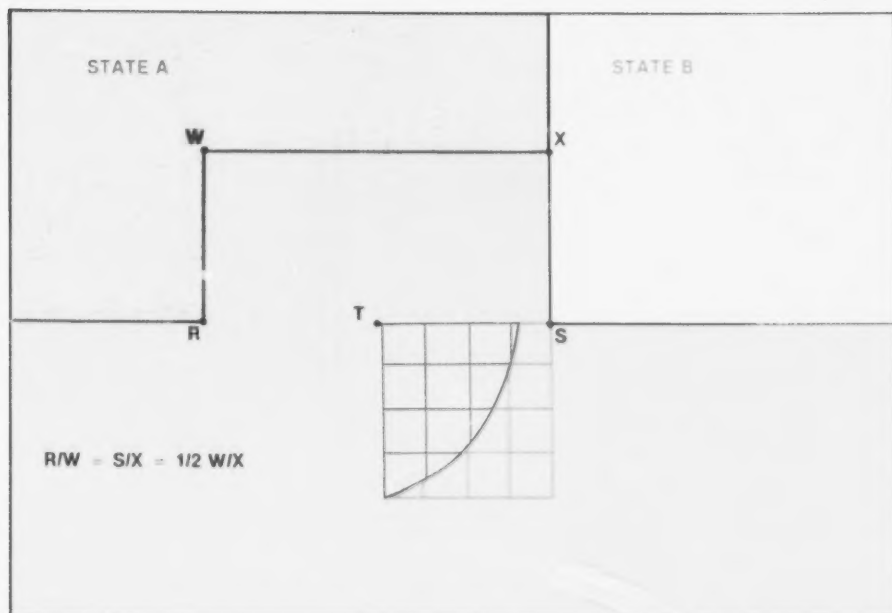




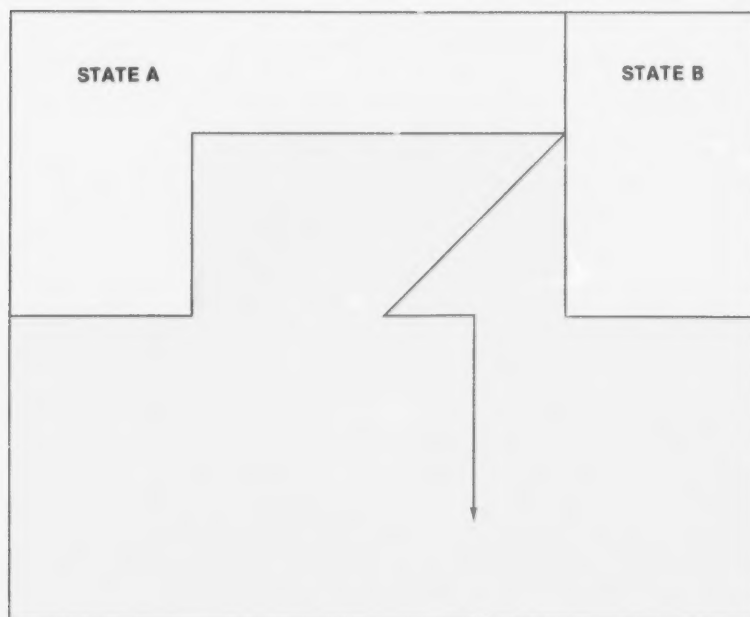


Scale 1:3,200,000





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**PROPORTIONALITY TEST APPLIED TO THE LINE
PROPOSED BY THE UNITED STATES IN 1976 OUT
TO THE 200-NAUTICAL-MILE LIMIT**

SIMPLIFIED COASTLINE LENGTHS

United States 24,750 nautical miles
Canada 20,000 nautical miles

RATIO OF COASTLINE LENGTHS

United States 1.24
Canada 1.00

**TOTAL AREA OUT TO THE 200 NAUTICAL-MILE LIMIT,
LESS EXCLUDED AREA AND GREY AREA**

United States 63,350 square nautical miles
Canada 63,350 square nautical miles

**DIVISION IF DELIMITED BY THE 1976 UNITED STATES
LINE**

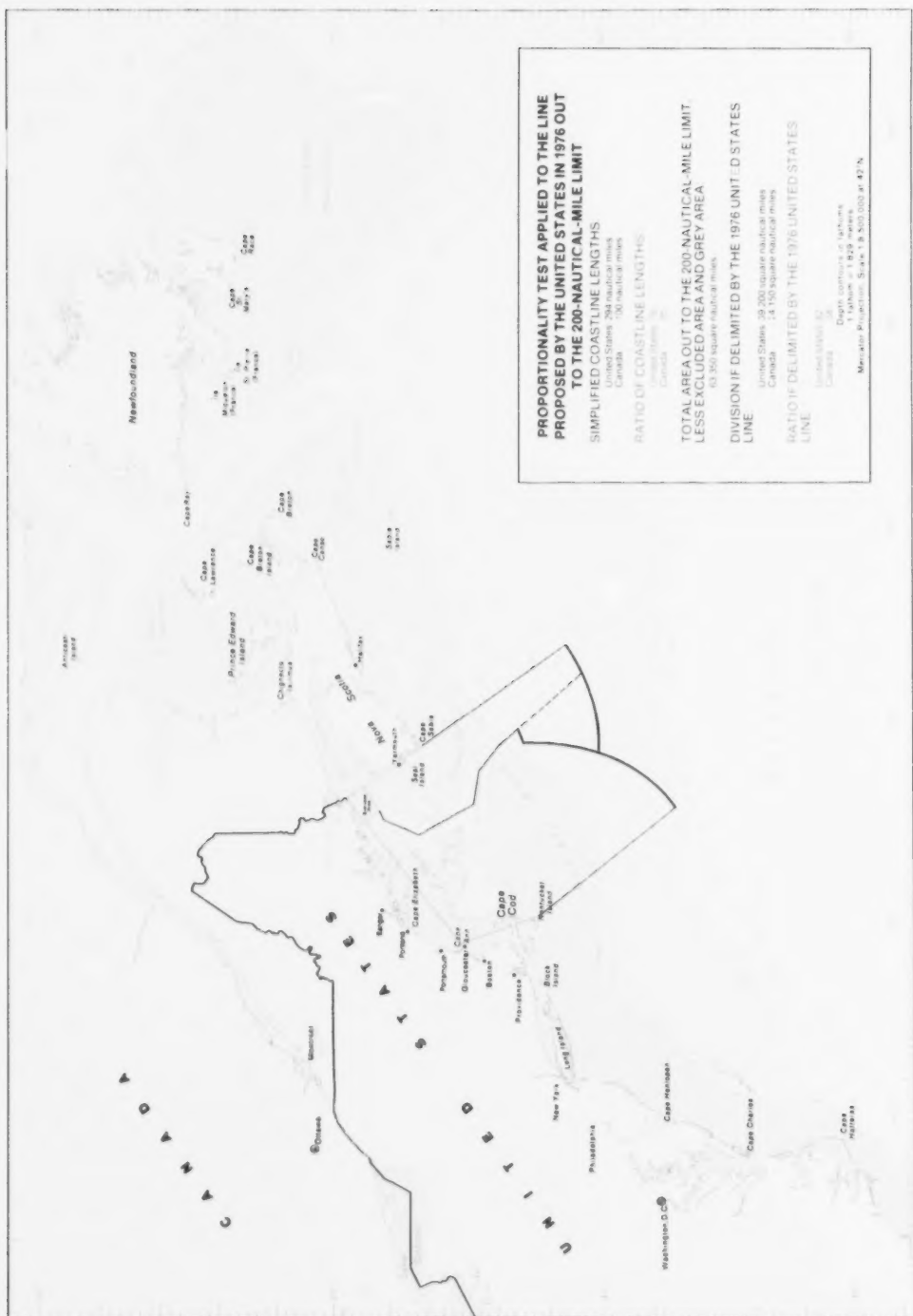
United States 39,200 square nautical miles
Canada 24,150 square nautical miles

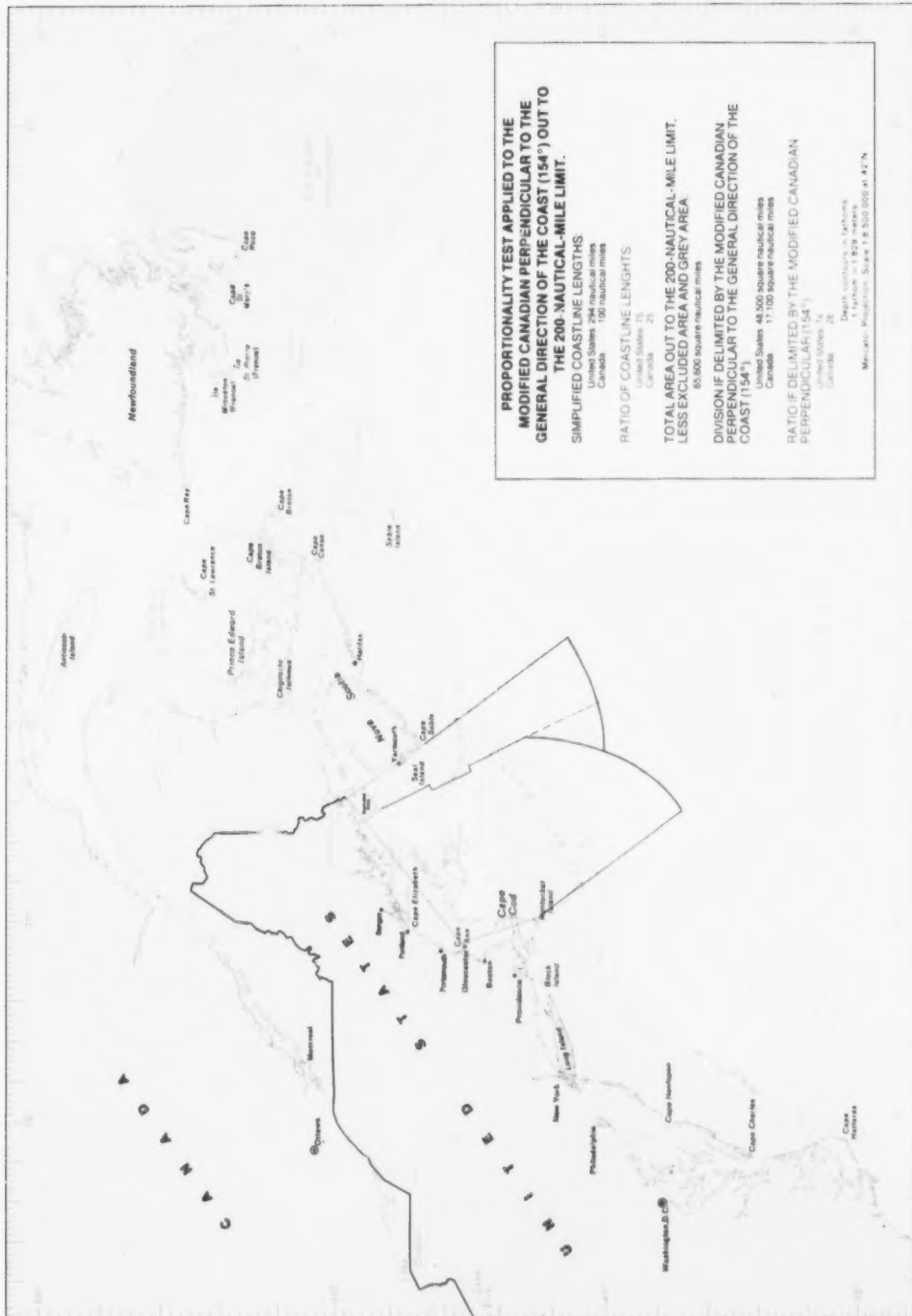
**RATIO IF DELIMITED BY THE 1976 UNITED STATES
LINE**

United States 1.62
Canada 1.00

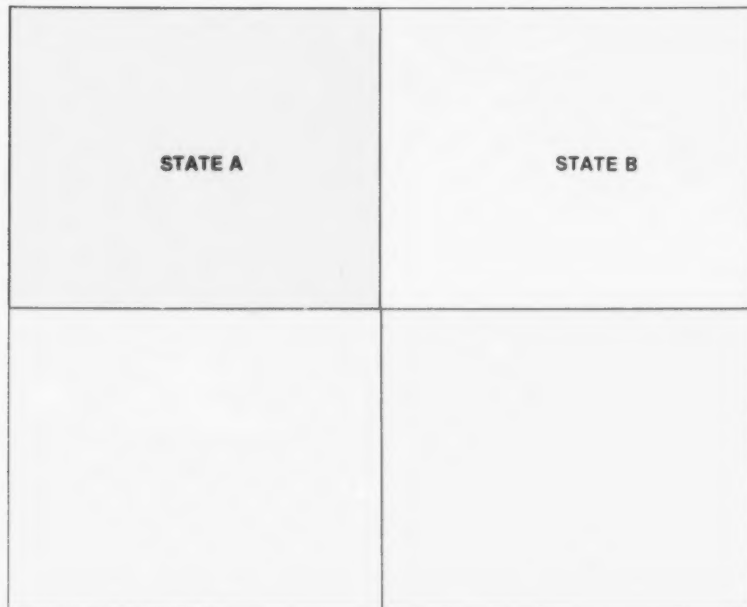
Depth contours of fathoms
1000 and 2000

Mapmaker Projection: Scale 1:5,500,000 at 43°N

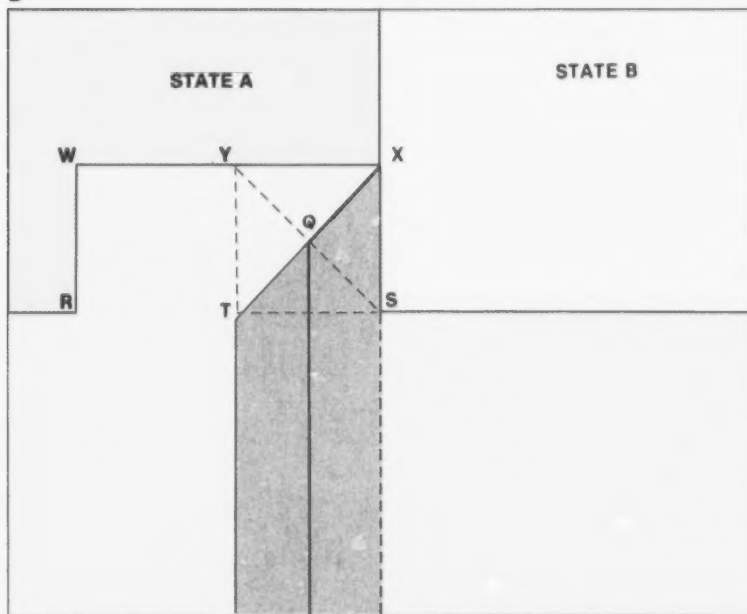




A



B





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